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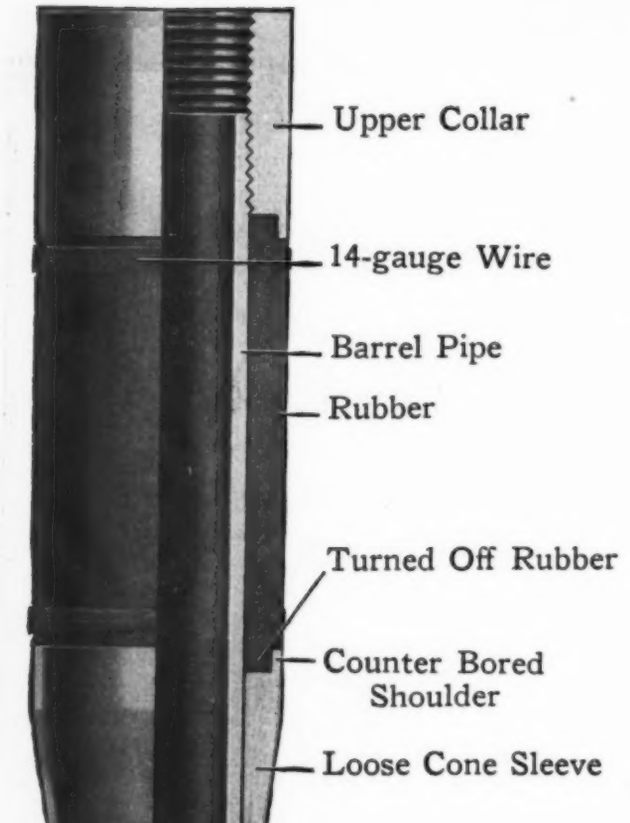

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Say you saw it in The OIL WEEKLY

Crude Price Cut Affects Entire Mid-Continent

Change in gravity differental makes reduction of 15 cents mount to 39 cents per barrel on highest gravities posted

By KENT RIDLEY

SUSPENSE as to when the flood of oil coming from the wells in the Seminole area would force a reduction in the posted price of crude oil in the Mid-Continent was relieved on Tuesday. The initial move was made by the Carter Oil Company in Oklahoma and Kansas, and although the hatchet was produced in apparent celebration of the holiday for which hatchets are famous, word went swiftly into other organizations which were partly closed for the day, but not so tightly that orders could not be issued on new price bulletins. Details of the cuts are given on the crude price page of this issue.

The reduction was 15 cents per barrel, with a change from five to four cents for the differential in gravity degrees. This makes the reduction on oil of 52 gravity and above 39 cents. Influence of greater cracking efficiency is reflected in the further change of this differential—high gravity oil is the heaviest loser in the last two cuts.

The reduction announced by the Carter Oil Company, which is the Mid-Continent wing of the Standard Oil Company of New Jersey, was followed by the Prairie Oil & Gas Company and in Texas the Humble Oil & Refining Company, New Jersey subsidiary, and Magnolia Petroleum Company, New York subsidiary, were early to announce participation. Other major purchasers have or are expected to meet the new prices.

The Carson-Hutchinson County area in the Texas Panhandle was the only high gravity oil producing field in the Mid-Continent to escape the price cut, and the distinction was due to the fact that the price was already down to $1.25 per barrel, gravity disregarded. New prices posted for crude in Crockett, Crane and Upton Counties in West Texas, lowers the average price to about $1.00 per barrel, while the highest price there is $1.12 for 33 gravity, the highest grade produced in the three counties.

While several factors can be sighted as bringing on the price reduction, the real cause is the Seminole area of Oklahoma which is producing 320,000 barrels daily and expected to go higher.

Opinion in the Mid-Continent is that the reduction should have come earlier, as conditions for the last two months left little hope of escaping the move. Within the past two weeks, statements from executives of the larger companies have been conflicting regarding prospects of the crude market. While the revised schedule amounts to a substantial cut on the higher grades of oil, many believe that still other cuts are in prospect.

Daily average production for the week ending February 19 in all U. S. fields was 2,472,000 barrels, representing a gain of 9,750 barrels over that of the previous week, according to estimates of the American Petroleum Institute.

Production east of the Rocky Mountain States made a daily average for the week of 1,748,200 barrels against 1,736,550 barrels of the previous week, all of the U. S. increase coming from this section. A 1500 barrel drop was registered in California with a 400 barrel drop in the Mountain States. The drop in California came from a 2000 barrel decrease in Huntington Beach.

Two spectacular gains loomed up during the week, including 14,200 barrels in Seminole pool, bringing the daily average for the week to 282,600 barrels, and a 6,850 barrel gain in the Crane-Upton County section of West Texas with a daily yield of 46,050 barrels for the week. The Seminole average did not include Earlsboro's run of 19,150 barrels.

A drop of 8,500 barrels at Spindle Top brought the total daily average for the Texas Gulf Coast territory to 140,750 barrels. Other sections of the country showed only minor changes either up or down.

Seminole is still looked upon as having sufficient additional flush production to bring further downward revisions. Apparently the pipe line concerns are not willing to provide more than 300,000 barrels of outlet for the field. Neither are producers without pipe lines or sufficient lines for their own production, willing to build steel storage sufficient to care for the output in excess of present facilities.

The price cut has been anticipated by buyers of refined products, both domestic and export, and as a consequence the movement of gasoline has been at low ebb. Refiners have curtailed their runs as a consequence, which has been a factor in the reduction of crude prices, although on the surface it comes as punishment for over production at Seminole where it had been hoped that production could be controlled by agreements between producers.

Premiums on spot crude offerings in North Texas and the Texas Panhandle districts have sustained a sharp drop, due to the uncertainty of the general Mid-Continent market. In the North Texas district, local refineries have found it necessary to further reduce crude runs to stills, because of dormant conditions in the domestic and export gasoline markets, and trading in spot oil has dropped to a low level. The Panhandle market has found considerable compeition from the Greater Seminole area lately, and premiums on Panhandle oil for tank car delivery have dropped from 10 to 20c per barrel within the past two weeks. No distress crude is available in the Panhandle, despite the fact that the district is producing about 130,700 barrels daily, as the four major pipe line companies engaged in building trunk line systems into the district are building up large reserve stocks to protect their lines with a supply after the production recedes to a lower level.

Prairie is reported to have finished up its tank car shipments of crude from the Texas Panhandle district to Mexia for storage, after having averaged between five and seven thousand barrels daily for some weeks past. Prairie has moved in excess of 500,000 barrels of crude from Hutchinson and Gray Counties to Mexia tankage in tank cars, and expects to have enough steel tankage under construction in the Panhandle to accommodate production and outside crude purchases until its eight-inch carrier to Ringling, Okla., is completed in April.

Magnolia has curtailed tank building in the Panhandle, and when the 55,000 barrel tanks now nearing completion are finished, this company will have a total of 80 large tanks.

DETAILS ON CRITICAL FIELDS

Pool—	Oil Wells Completed	Total Initial Production	Initial Per Well	No. Producing Wells	Daily Production Barrels	Daily Production Per Well	Rigs Up	Wells Drilling
PANHANDLE—								
Hutchinson County	788	441,225	559	750	114,420	153	67	172
Gray County	104	29,635	285	103	8,905	79	10	42
Carson County	83	26,830	323	75	6,565	88	21	54
Wheeler County ..	18	5,955	331	14	1,605	115	12	18
Totals	993	503,645	507	942	130,685	139	110	286
OKLAHOMA—								
Seminole area	248	363,301	1,468	242	320,640	17,382	144	450

Technical Status Makes Conservation Legislation Unnecessary

Engineers show that scientific development is accomplishing desired results without restrictions

By SPENCER W. ROBINSON

New York.—Engineers attending the annual meeting of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers here last week were exceedingly wary when approached on the subject of legislation designed toward the elimination of waste.

Most of those present were unwilling to extend their remarks beyond the technical status of the industry and thus only a few openly committed themselves as to whether or not the industry's engineers are in position to direct or aid in the construction of such legislation.

Worthy of Consideration

However, facts presented at the several round table discussions as well as the prepared papers delivered at the technical symposiums, clearly indicated that the introduction of any legislation of such nature without first giving careful consideration to the industry's advanced scientific knowledge would be most ill-advised. Remarkable strides have been made in technical progress during the past few months, in fact it was shown at this meeting that many complete and radical changes have been made in operating methods all of which have tended toward a greater efficiency and conservation.

That legislation could be drawn that would aid in this forward step by the industry, without first taking cognizance of the increasing technical trend of the industry, is exceedingly doubtful. Conservation must come from increased efficiency which the vast amount of research now undertaken by the industry itself should prove can best be sponsored and achieved without the influence of legislation.

Further advances in the application of gas air-lifts for increasing the recovery from wells formed the greater part of discussions given over to Production Engineering subjects at the meeting while outlines of work being done toward the solution of corrosion problems as well as increasing refining efficiency threw some light on the extent to which petroleum engineering is advancing in the industry.

Engineers Discuss Progress

It was no doubt the surprising amount of research that was revealed at these sessions that prompted the meeting held Thursday night following the banquet for the purpose of discussing the engineering status of the industry.

Chairman F. Julius Fohs in throwing this subject open for discussion following the reading of a digest from a comprehensive paper dealing with Advances in Drilling and Production Methods prepared by Robert Boyd, Ward B. Blodgett and N. W. Wickersham said:

"It seems fitting that the Petroleum Division of the American Institute of Mining and Metallurgical Engineers should take cognizance of a subject so important as the question of legislating to conserve oil by controlling the amount of gas which shall be omitted per barrel of oil in its production. With this end in view we have asked a number of engineers to participate in this discussion, using as their subject the present status of technical knowledge as a basis for either general or specific legislation. As engineers, we have no interest in political, controversial, or polemical discussions, but should restrict ourselves to a presentation of the facts and of opinions based on such specific cases as we can marshall and I sincerely trust that those engaging in the discussion will maintain it on this plane. It is not our interest here to either foster or antagonize any proposed legislation, but to give to the industry, which necessarily looks to us as the largest body of technical men able to discuss these problems, the best that we have in store.

Knowledge New

"May I call attention to the very newness of our knowledge on this subject? At our fall meeting at Tulsa, in October, the principles involved in the use of the gas lift, which is one of the means of controlling the gas, were set forth and some of the then practice outlined. At the same session a notable paper on "Gas-Oil Ratios,"—the first comprehensive presentation of this subject was made by C. V. Millikan. Less than six months have passed and at our session of yesterday morning a whole new and improved technique for gas lift operations was completely set forth by E. O. Bennett and K. C. Solater, Production Engineers of the Marland Oil Company, and I am sure that the industry owes a debt of gratitude to that company for permitting so early and complete a presentation of methods worked out by it at great expense, representing, as it does, one of the very best papers on production technique presented in years. It is true that the Bureau of Mines and this Institute have, in previous years, had papers on these subjects but the specific application of the principles involved has greatly advanced."

Mid-Continent Has Seen Advance

In further commenting on this paper, A. W. Ambrose, manager of production for the Empire Gas and Fuel Company stressed the progress that has been made in the Mid-Continent area during the past year. In his opinion recovery at Tonkawa, Garber and Seminole has been greatly hastened by the application of air-lifts and a greater recovery per acre has also been obtained through this method of production. Emphasizing the important developments in work of this type, Mr. Ambrose summarized his remarks as follows:

"Surely there is an increasing appreciation of the part gas plays in oil production. 'The gas-oil ratio' is today a common term amongst petroleum engineers and many operators. It is being more appreciated and acknowledged that under most cases of production, gas is the principal force in moving the oil to the well. The keen appreciation of this fact and the increasing effort to save the gas is gratifying."

In a prepared discussion read by Chairman Fohs in the absence of E. O. Bennett, Chief Production Engineer of the Marland Oil Company of Texas, Mr. Bennett stated that the action of the Conservation Committee of the American Petroleum Institute is justified in specifying a gas factor limit of 500 cubic feet with changes in limit as needed. Mr. Bennett further pointed out that the attitude of companies now toward gas conservation and results already obtained are proof of what can be done. In the opinion of this engineer, production engineers do have sufficient knowledge to wisely advise state legislatures.

As proof of his arguments Mr. Bennett made the following reference to the Panhandle field:

"The Panhandle field is an example

(Continued on page 42)

Volume and Pressure Control for Wells on Gas-Lift

Experimental work in Panhandle field leads to successful method for controlling each well

By E. O. BENNETT and K. C. SCLATER
Chief Production Engineer, Marland Oil Company of Texas, and Chief Production Engineer of the Marland Oil Company of Oklahoma

THERE are so many variables which enter into the design of a gas lift that each and every well must be considered as an individual problem and analyzed accordingly. A careful study of results obtained by varying the controllable conditions will furnish data for increasing the efficiency of an installation that cannot be successfully worked out by theoretical equations.

The term "submergence" will not be used in this paper. "Submergence" has been used to denote the depth of the lower end of the tubing or flow line below the static fluid level in the well. "Working submergence" has been used to denote the submergency of the tubing or flow line during actual lifting operations. Both of these have been quantitatively expressed in feet of fluid as required by their definition.

The consensus of opinion of many Production Engineers is that the term "working submergence" for water lifting with air is inadequate and meaningless when used in petroleum production, since "submergence" never actually exists in a flowing oil well.

The essential factors to be defined are, the pressure involved and the rate of flow of fluid into the hole under these pressures. The pressures of importance are the pressure in the formation, commonly called the "rock pressure," the gas working pressure, and the pressure on the pay sand due to the fluid below the bottom of the tubing plus the working pressure required for the injection of extraneous gas into the well. The differential pressure causing the flow of fluid into the well bore is the difference between the static rock pressure and the summation of the two variable pressures imposed upon the sand.

Factors to Be Considered in Designing Gas Lifts

The important factors entering into the design of gas lifts for oil wells are:

(1) *The Ability of the Sand or Formation to Produce Oil.*

The ability of the sand or formation to produce oil is dependent upon the porosity, thickness and the saturation of the formation, and the gas pressure existing in it, also upon the viscosity and surface tension of the oil. The ability of a well, which will not flow naturally, to produce oil is determined by the rate at which oil will fill a definite size casing.

Figure 1 shows a typical casing "fill-up" curve. To obtain such a curve, the well is bailed or swabbed down and the position of the fluid level in the well measured at definite time intervals. The fluid level may be determined by running a bailer on a sand line, or, more accurately, by the use of a special measuring device, which has been used for measuring fluid levels in water wells.

The device consists of a set of contacts which come together when afloat and the lower one touches the fluid surface. The closing of the contacts closes an electric circuit, ringing a bell at the surface of the well, indicating the exact position of the fluid surface.

(2) *Pressure in the Oil Producing Formation.*

At the present time the actual pressure in the oil producing formation must be determined from the observed pressures at the well head, the amount of fluid in the hole, and its specific gravity. Equipment has been designed by the Production Engineers of the Marland Oil Company for obtaining an absolute determination of the actual pressure in the formation without reduction from indicated well head pressures. Such equipment is at the present time being constructed.

A study of the fluid level test curve of Figure 1 indicates that increasing the height of fluid in the hole does not effect the rate at which the oil enters as long as the curve is straight and follows a constant slope.

A study of the curve shown indicates that the rate of filling the casing for this particular well was not effected until 2752 feet of hole was filled by the oil. After this point, the increased height shows a very marked effect upon the rate at which the oil enters.

From an analysis of the curve, it can be seen that the tubing or flowline in this well can be kept far off the bottom and production still maintained. If the tubing is lowered beyond a point necessary to cause a well to flow, higher working pressures will be required, which will result in increased compression costs.

(3) *The Solubility of Extraneous Gas in the Oil to be flowed.*

Solubility affects the viscosity and surface tension and also the resistance to flow, which is dependent upon these factors. It also has some effect upon the natural gas factor, (cubic feet of gas from the formation per barrel of oil lifted.)

(4) *The Amount of Natural Gas per Barrel of Oil in the Formation.*

This item is called the natural gas factor. A means for thiefing a true sample of oil from the formation under the existing pressure would supply extremely valuable information regarding the amount of gas dissolved in the oil. Such equipment is at present being constructed for this work. The amount of extraneous gas required in a gas lift installation depends largely upon the natural gas factor existing, since the total amount of energy must be supplied in the form of compressed gas, in order that a given weight of oil may be raised.

(5) *Surface Tension.*

Oils with high surface tensions show a tendency to liberate gas used for flowing more rapidly than oils having low surface tensions. This has an appreciable effect upon the gas factor. It also has considerable effect upon the design of traps, or separators, used to separate the oil and gas at the surface of the well.

In the Panhandle field, owing to the high surface tension of the oil, complete separation can be effected by using gunbarrel tanks without the use of baffles. Condensate taken from the gathering lines connected with such tanks is water white in color, indicating complete separation. In other locations where oils have low

THIS paper is not intended as a theoretical treatise on the gas lift for oil wells, but is written with the object of pointing out a few new ideas which have been found practicable and economical for use in this much discussed but little used method of producing oil wells. Most of the ideas discussed were worked out in the Panhandle Field of Texas where the problems confronting gas lift operation are more numerous and difficult than those found in most fields in the United States. One of the principal reasons for the industry's slowness to adopt gas lift methods is due to the poor results first obtained in trying to use methods of air lift for raising water in producing oil.

The accompanying discussion was prepared for and delivered before the annual meeting of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers at New York, February 14 to 18.

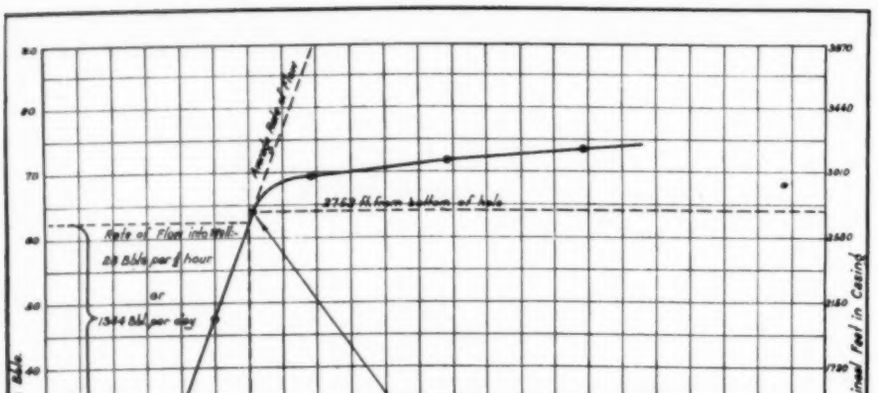

FLUID LEVEL TEST
Curve Showing Rate of Flow of Fluid into Well.
2752 ft. is the point below which the hydrostatic head does not affect appreciably the rate of flow of fluid into the well; hence a measure of the hydrostatic head below which it is not necessary to drop in the sand for maximum production from the well.
Rate of Flow into Well
23 Bbls. per ½ hour
or
1324 Bbls. per day
2752 ft from bottom of hole
Barrels in Hole
Linear Feet in Casing
Time in Hours

Figure 1

surface tensions, traps with much baffling are required to break down the frothy mixture and liberate the gas. This is especially true of wells of large capacity where high velocities exist.

(6) *Pressure Required for Flowing Wells.*

When the pressure required for flowing a well becomes greater than the existing pressure in the producing formation, the gas lift cannot be made to work.

Pressures have been found to vary from four to ten pounds per 100 feet of flow line. A study of pressure conditions existing in the wells, and the probable working pressure that will be required for flowing a well, will show the advisability of attempting to produce such a well by gas lift methods. There are cases where such a small differential exists between the flow pressure and the pressure in the formation that the installation of a gas lift could be made to work but a brief period.

(7) *Size of Tubing.*

The size of tubing or flow line is governed by the volume of fluid to be lifted, the depth of the well, and the amount of gas required for flowing. A tapered flow line is theoretically more efficient than a straight one, if it were in the form of a true cone throughout its length.

It is, however, impossible to obtain such a line and it is the opinion of the writers that a tapered line with abrupt changes in diameter would be less efficient than a proper size line of uniform cross section. This is on account of sudden changes in velocity due to the variation in pipe size.

Experiments have shown that in most cases it is advisable to flow the oil through a string of tubing rather than between the tubing and casing. There is less contact surface and less internal friction in flowing through tubing, the ratio of the contact surface being dependent upon the size of flow line and size of casing used. There is additional friction when flowing between tubing and casing on account of turbulence caused by the collars on the flow line.

Another important reason for flowing through tubing is that the tubing can be replaced with greater ease and less cost than casing, where the pipe becomes destroyed by corrosion from bad water and gas. This is especially true where sulphur water is produced along with oil and air is used as the lifting medium.

In some installations flow lines have lasted but a very few weeks. If the oil is flowed between the tubing and casing under these conditions, destruction of the casing occurs which would ruin the well in the same period of time.

(8) *Cost of Gas.*

Where gas must be purchased and its cost is greater than the reduction in lifting cost, which may be effected by its use in the gas lift, it is not economical to use this method of flowing. This is especially true where "thief" sands exist, into which part of the gas may escape. Gas, at a high price, may be used where it is impossible to pump wells on account of existing depths and crooked holes. Gas lift is the only method by which some deep wells with small production may be economically operated.

Air may be used in any gas lift installation and will give entirely satisfactory results.

(9) *Equipment in Wells.*

Experience has shown that special nozzles and foot pieces are of practically no value in increasing the effeciency of flow and that, under some conditions, they actually lower the efficiency.

It has been claimed by many that a jetting action can be created which will increase the efficiency of the lift. The writers do not believe this action to be of any help and prefer to use plain ended tubing for flow lines. Results of numerous installations have substantiated this contention.

There are, however, a few cases where deflectors may be used to change the direction of flow at the bottom of the tubing, particularly where gas is injected through tubing. This is to keep the gas and fluid from impinging against the walls of the hole and to eliminate churning of mud where such exists in the well. Deflectors used by the writers are shown in Figure 2. They are not used for any purpose other than changing the direction of flow.

Where paraffin is present, the type of deflector shown at the right side of Figure 2 is used. It has a swedge above the bottom to prevent paraffin from balling up and sticking the tubing. The plain type is used where paraffin troubles do not exist. Deflectors of this type may be used

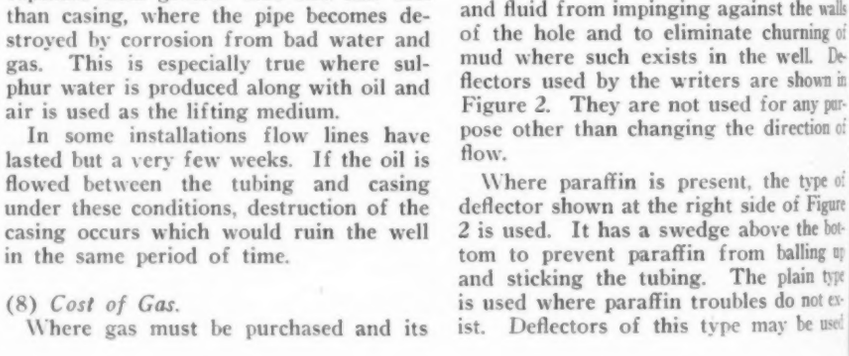


Figure 2

where the flow is either through the tubing or between the tubing and casing.

In special nozzles, having small ports to create high velocities, for the mixing of gas and oil, there is very apt to be a clogging effect on account of mud, paraffin or asphalt. Where tried, special foot pieces have not shown any increase in efficiency.

Surface Equipment

Casing Heads

There are several types of casing heads on the market which are used for supporting tubing in gas lift wells. They are all of the "packed" type and give more or less trouble from leakage where exceedingly high working pressures are required for "kicking off" or starting wells, are used.

Experiencing considerable difficulty in obtaining satisfactory heads for gas lift work, a new type of head was designed. It is of the "packless" type and has been found entirely satisfactory on all pressures used.

The head consists of a forging turned and threaded to fit the casing oil string. The upper part of the head has a tapered seat turned and ground to the angle shown. A special collar ground to the same taper as the seat is used on the tubing.

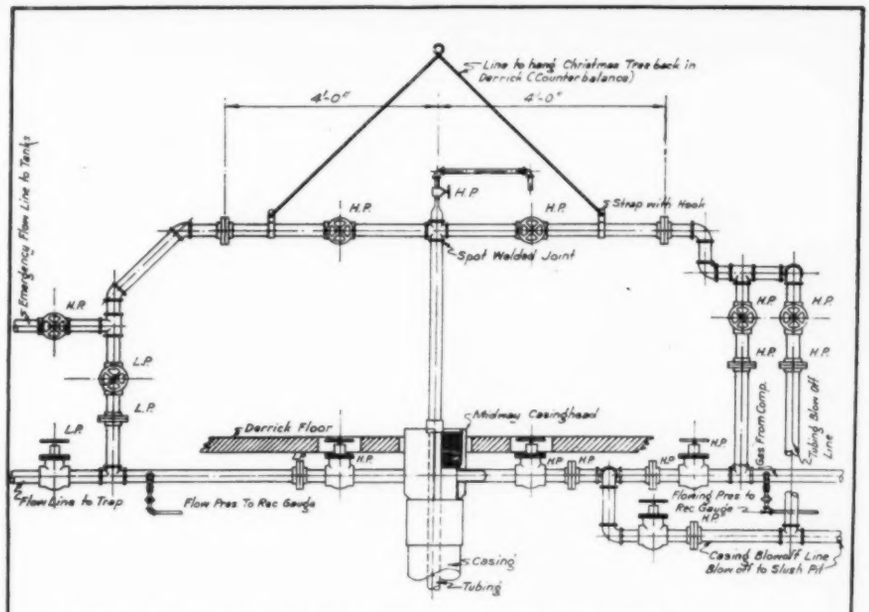
The weight of the tubing holds the collar in the seat. On account of the small area exposed to pressure the head will seat tightly against extremely high pressures. 2400 feet of 2½-inch tubing provides sufficient weight to hold pressures in excess of 5000 pounds per square inch. A heavy grease is smeared over the tapered collar before it is seated forming a perfect seal. A common tubing spider and slips are set on top of the head when it is desired to change the position of the tubing.

Another style of "packless" head is at the present being made, in which the upper part of the head is recessed for slips similar to the ordinary tubing heads in general use, side connections of proper size provided for the gas inlets. The packless type head has been found more serviceable and less expensive than heads now on the market.

Head Connections of "Christmas Trees"

Figure 4 shows the type of connections, or a "Christmas Tree", used for flowing deep wells in California. A packed head is used in this particular setup. Connections are so arranged that gas may be introduced through the tubing, or between the tubing and casing. These connections are made in order that the fluid column in the well may be rocked until the oil becomes sufficiently aerated to start the well flowing with the lowest possible working pressure.

In deep wells it is necessary to rock the column several times in order that the well may be started. Where wells are exceptionally deep, it is sometimes necessary to raise the tubing and flow off part of the head, then suddenly lower the tubing and repeat until the working condition desired is reached. After the lowest



LAYOUT OF TYPICAL GAS LIFT CHRISTMAS TREE MANIFOLD

Figure 4

position of the tubing is reached, it is desirable and necessary to keep continuous operation at all times to prevent the necessity of re-starting, which takes time, causes a loss of production, and is expensive.

The "Christmas tree" shown is supported on a wire line in the derrick so that it may be readily swung out of the way when the position of the tubing must be changed.

Marland Methods in Panhandle

In the Panhandle field of Texas the method used by the engineers of the Marland Oil Company for starting a well is as follows:

Gas is first admitted to the tubing and allowed to pass up through the oil between the tubing and casing for about one hour. The aeration of the column is then suffcient to cause the mixture to flow from the well. As soon as the flow starts the direction of the input gas is suddenly reversed, gas being applied to the annular space and the tubing is opened to flow.

The column of the aerated oil in the space between the tubing and the casing is much greater than the volume of the tubing so that a lowering of the level in the annular space by gas pressure causes the light mixture in the tubing to rise rapidly and flow out, thus starting the well. By using this method, wells flowing from 3000 feet have been started on a maximum working pressure of 250 pounds, whereas 600 pounds pressure is often not sufficient to "kick off" the same wells directly through the tubing.

The working pressures in most of the wells in the Panhandle vary from 125 to 175 pounds. The production of these wells ranges from 5 to 1700 barrels per day.

Another method called "super-flushing" is used for starting wells on the gas lift in the Panhandle area. It consists of starting the gas through the tubing similarly to the method previously described. After the flow has been started from the annular space, a large volume of gas is suddenly released through the tubing, expelling practically all the aerated fluid in the well. The direction of flow is then reversed and the flow started through the tubing.

This method requires less time and lower pressures than any other method. A well requiring a normal working pressure of 180 pounds has been started in this manner on a maximum pressure of 230 pounds. Flow is established into the tubing at the well head within two or three minutes after "super-flushing" takes place.

Rocking or reversing wells that will normally operate on pressures up to 175 pounds eliminates the necessity of installing high pressure compressors for "kick off" purposes and permits the construction of larger plant capacity for a given amount of money.

Connections on the "Christmas tree" arrangement used by the Marland Oil Company in the Panhandle District, are provided so that the flow may be obtained through the casing or the annular space between the tubing and casing the same as in California practice.

Where a well can be put in operation on the gas lift by rocking and reversing, starting pressures higher than the original rock pressure in the sand can generally be eliminated. Allowing the starting pressure to exceed the rock pressure is extremely dangerous and subjects certain types of wells to very harmful effects. If there is any mud or paraffin accumulated in the hole and the direction of pressure differential is reversed even for a short time, due to a high starting pressure, the walls of the hole will become plastered and the drainage area partly closed. When normal flow is again established, the wells do not regain their original condition and must be cleaned, causing a delay and loss of production.

A well in the Panhandle which has pro-

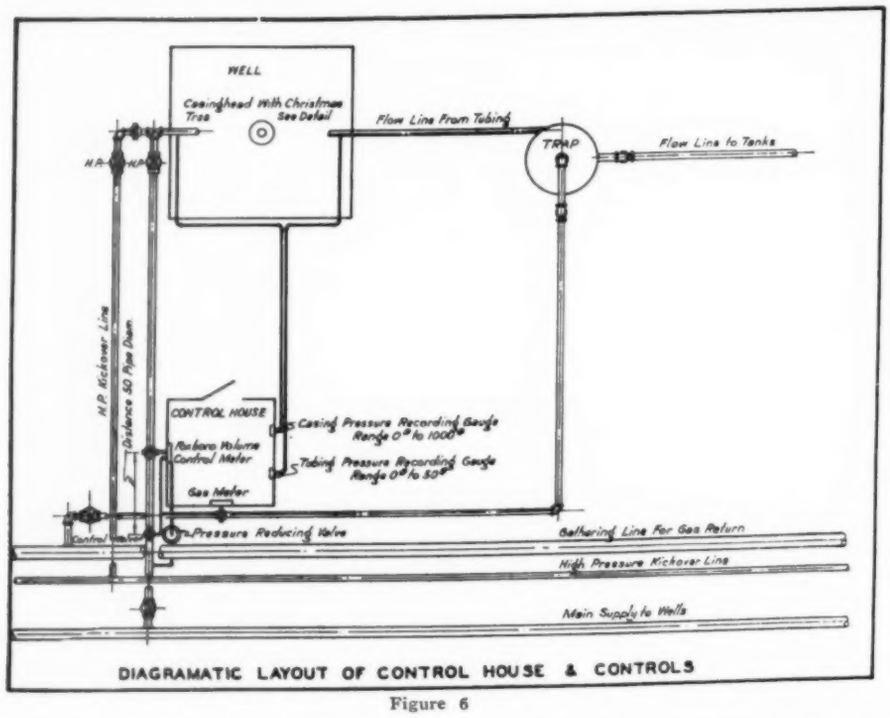

WELL
Casinghead With Christmas Tree See Detail
Flow Line From Tubing
TRAP
Flow Line to Tanks
H.P. Kicker Line
Distance 50 Pipe Diam.
CONTROL HOUSE
Rockwell Volume Control Meter
Gas Meter
Casing Pressure Recording Gauge Range 0# to 1000#
Tubing Pressure Recording Gauge Range 0# to 50#
Pressure Reducing Valve
Gathering Line For Gas Return
High Pressure Kicker Line
Main Supply to Wells
DIAGRAMATIC LAYOUT OF CONTROL HOUSE & CONTROLS

Figure 6

duced steadily at 300 barrels per day was shut down on account of line changes. The operator on the lease tried to start the well without rocking or reversing as he had been instructed. In so doing, the pay formation in the well was subjected to a pressure in excess of 500 pounds per square inch, (the original rock pressure was 420 pounds). This caused silt and paraffin, which exist in this region, to be forced in to the formation The result was that the production of this well dropped to forty barrels and has not been recovered.

This occurrence makes a cleanout job necessary and emphasizes the fact that accurate knowledge of conditions is necessary and that skilled help is required in producing oil wells with gas lift methods, if best results are to be obtained.

Where reversing requires pressure in excess of twice the working pressure of the compressors, it is advisable to have a separate source of high pressure gas available. Most compressors will stand a load of twice normal working pressure, which may be required for starting.

Figure 6 shows a scheme where a high pressure line is laid to all wells for starting purposes. This line carries gas from a single high pressure machine at the main compressor station.

Figure 7 shows an arrangement where a single stage high pressure compressor of small volume is installed at a control station. With this arrangement the intake gas to the compressor is taken from the field distribution line which normally supplies all control stations and wells. This gas is compressed and then flowed to the well which is to be started. The control manifold as shown permits one small compressor to handle several wells receiving gas from a control station.

Finishing Wells.

It is of great importance to finish a well with proper facilities for putting it on gas lift at a later date without interrupting its flow. With sufficient forethought and study this can usually be done with but little trouble and expense and will result in a saving in time and production. Head connections should always be provided for flowing either through or around the tubing.

Gas Lift Methods for Flowing Oils With High Paraffin Content

In the Texas Panhandle the temperature in the oil bearing formation is but 85 degrees F. as compared with 120 degrees F. in most fields producing from the same depths. The oil in the Panhandle fields congeals to a solid mass at approximately 60 degrees F. This allows but 25 degrees F. drop in temperature in producing the oil from the formation to the surface. Since isothermal expansion of the extraneous gas injected, and natural gas in the oil, cannot be obtained, the refrigerating effect of the gas upon expanding lowers the temperature of the oil and causes paraffin to deposit in the tubing and flow lines.

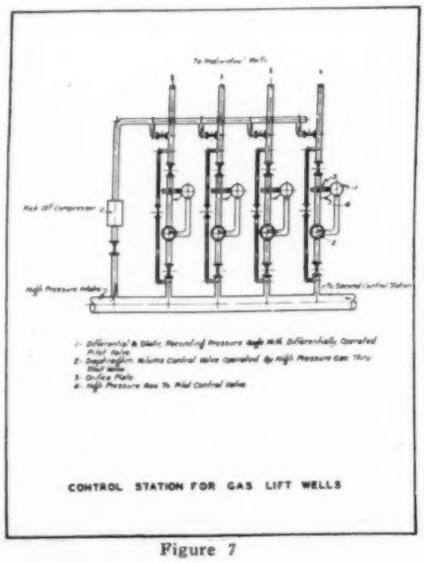


Figure 7

If left to accumulate, the paraffin will plug the flow lines and cause the production of the well to fall off rapidly and eventually die. A well flowing through tubing in the Panhandle field, if not given attention, will generally become plugged within forty-eight hours. There are two methods of preventing the accumulation of paraffin; one is by the application of heat and the other by mechanical scrapers.

The application of heat has been found by trial and experiment to be but partially successful under the severe conditions that exist in the Panhandle District. Wells in this district have been kept flowing by the injection of heated gas for a period of two months. After this time they have had to be shut down and cleaned. When this particular oil is kept hot enough to retain its fluidity, a hard scale is formed in the flow lines. This is probably due to the high temperature of the gas required to impart sufficient heat to the oil on account of the great difference between the specific heat of the gas and that of the oil.

Steam has been injected through the small tubing inside of the flow lines and has given the same results as heated gas but forms emulsions with the oil, requiring an additional cost on account of necessary treating.

The principal difficulty in using heat is that of getting it to the place where it is needed. In a well flowing through tubing, most of the heat will be dissipated out through the casing. If the gas is injected through the tubing the heat will be given to the oil, but mostly to the top of the well where the greater temperature difference occurs. It has been found practically impossible to get enough heat to the oil throughout the entire length of the flow line and paraffin has formed from 700 to 800 feet from the derrick floor down to the liquid level in the well.

This condition makes it necessary to occasionally pull the tubing and remove paraffin from the casing.

In several cases other than in wells on the gas lift, attempts to remove paraffin from the casing have resulted in the killing of the wells by plugging.

A device called a "Flow Devil" was designed and patented by N. O. Miller, Production Engineer for the Marland Oil Company in the Panhandle District. This device is shown in Figure 8. It consists of two annular collars supported on a mandrel which is provided in its upper end with a standard pin joint. The mandrel is flattened where it passes through the sleeves to offer the minimum resistance to flow. One cuttter is all that is necessary to remove the paraffin from the walls of the tubing or casing.

This is accomplished by the cutter at the bottom of the tool. The upper sleeve or cutter is used as a guide to prevent the tool from canting and hanging up in the breaks at the tubing joints.

The scraper is run in the well on a sinker bar and set of short stroke jars.

(Continued on page 35)

Corrosion Problem Getting Proper Attention from Engineers

Data presented in New York shows extent of research undertaken. Need for greater activity stressed

By C. P. HARRIS, Ph. D.
Special Staff Representative

THE keynote of the session devoted to the discussion of corrosion in the industry at the annual meeting of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers, was the emphasis placed upon the necessity for the most intimate cooperation and coordinaion of effort between technical men in the various fields.

An invitation from the American Petroleum Institute asking that the American Institute of Mining and Metallurgical Engineers cooperate with that body in the solution of corrosion problems, was accepted by resolution at this meeting with the added suggestion that other societies also be invited to join in this work.

The Corrosion Symposium occupied all day of February 17 and the sessions were participated in by technologists interested in petroleum products, equipment, production of noncorrosive alloys and other metallurgists.

Charles H. Osmond presided in the absence of F. N. Speller who was unable to get to New York from California. In this connection Chairman Fohs, during the meeting, expressed the conviction that it would be advisable to have the next meeting take place nearer the center of activity of the oil producing regions so that more of the men directly interested in the work could attend.

While corrosion problems have been before the industry for sometime, the symposium devoted to this subject at the annual meeting of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers emphasized the need for an immediate cooperative action toward reducing this expensive operating evil.

It was estimated by some of those engineers who have pioneered in the study of corrosion in the Petroleum Industry that this item costs in the neighborhood of $500,000,000 a year.

To reduce the loss from corrosion is the one way that the Industry can effect conservation in terms that conservation should be considered by the Industry and that is by increasing operating efficiency.

The discussions at New York covered the corrosion evil in all its phases and in as much as the problem is one that requires the closest of co-operation from all branches of the industry, the high lights of the meeting are given herewith, not only for those items pertaining to production and transportation but for refining and natural gasoline as well.

Importance of Corrosion

F. N. Speller's paper on The Importance of Corrosion was read by title in his absence. The important points made by this engineer were as follows:

"In the oil industry, there are evidently three general classes of corrosion, relating to: (1) Production, (2) Transportation, and (3) Refining.

"(1) *Production.* Some fields, those of California for example, have little corrosion trouble in the wells. In others this is a major problem and should be a strong incentive to the development of more resistant metals at a reasonable cost. E. G. Woodruff, consulting geologist, has pointed out that more of the oil of the future will probably come from the limestone areas rather than from the sands, and oil from the former seems to be accompanied by a higher sulphur content. The corrosive sulphur compounds cause a high corrosion rate even in the absence of oxygen; the sulphur and sulphide of iron deposited upon the metal surface have a strong electrolytic and depolarizing influence, which accelerates the rate of solution of the metal. The high chromium-iron alloys seem best suited to meet this condition, but are at present too expensive for general use. Corrosion from such causes will probably become more pressing as time goes on. In the producing departments in certain limited areas, corrosion trouble is now very serious and threatens to limit the operating life of some fields unless an economical remedy is found. Wells costing $40,000 to drill have been lost through corrosion and the production in others has been considerably curtailed.

"(2) *Transportation.* The actual loss to the industry from corrosion at present cannot be estimated accurately. The chief engineer of the Prairie Pipe Line system recently stated that corrosion in underground pipe lines exacts an annual toll in the United States of at least $100,000,000. One company in the west reports an annal expenditure of about $600,000 in combatting pipe line deterioration.

"(3) *Refining.* In oil refineries some progress has been made towards minimizing corrosion of equipment by chemical treatment of the product or by the use of more resistant materials, but corrosion is still a major problem, as is indicated in the recent paper by H. F. Perkins."

Corrosion in Presence of Oily Substances

U. R. Evans' paper on Corrosion in the Presence of Oily Substances involved the following conclusions:

"Surveying the subject as a whole, it seems probable that the conditions needed to cause serious and continued local attack upon metals through the redistribution caused by oil-drops will only very occasionally be produced in industry. But for that very reason the danger is an insidious one, the occurrence of the trouble being exceedingly difficult to predict. Quite likely some of the cases of "inexplicable" corrosion, which occur from time to time, ought to be attributed to this cause; one cannot help wondering whether some of the troubles which engineers have experienced after using oily boiler-feed water, may not have been due to the effect under consideration.

"The localization of corrosion by inert oil is a matter which touches a wider field than the oil industry, being of moment to every engineer who employs for any purpose whatsoever a water liable to contain oily substances. For that reason, although there is no special cause for alarm, it is highly desirable that attention should be drawn to the possibility of this type of attack. The experiments also serve to show that the existence of a circle of corrosion around an oil-drop does not indicate that the oil necessarily contains a corrosive constituent. This fact is of special concern to those interested in the production of oil, and affords, I think, some justification for describing the observations on the present occasion."

Sulphur in Petroluem

Dr. A. E. Wood of Mississippi College read an interesting paper entitled "Sulphur in Petroleum." Solutions of sulphur and various sulphur compounds were made in known amounts in naphtha as a solvent. The effects of various desulphurizing agents upon these known solutions were then studied, as well as the corrosive action of the solutions them-

selves. He summarized his results in desulphurization as follows:

"The results indicate that none of the refining agents used were effective with all types of sulphur compounds employed. Sulphuric acid was the most effective general desulphurizing agent. Sodium plumbite (doctor solution) removed hydrogen sulphide and in the presence of elementary sulphur converted the mercaptan to the corresponding alkyl di-sulphide and is consequently an effective sweetening agent. Silica gel is in general a better desulphurizing agent than either fuller's earth or aluminum oxide. Sodium hypochlorite, copper oxide, and aluminum chloride were not included in the table. Sodium hypochlorite was found to be a good sweetening agent as ordinarily used in the industry. However, the desulphurizing effect of sodium hypochlorite is dependent on a number of factors, such as the percentage of alkalinity of the hypochlorite solution, the volume-ratio and intensity of treatment, and the type and molecular weight of the sulphur compounds present. Copper oxide (Frasch process) destroys mercaptans and has been effectively used on distillates like those from Lima, Ohio, which contained appreciable quantities of this particular sulphur compound. Aluminum chloride at ordinary temperatures forms additional compounds with a number of the sulphur compounds investigated; but on heating, the sulphur compounds are decomposed, hydrogen sulphide being one of the products formed.

"These results also indicate that hydrogen sulphide and mercaptans are the sulphur compounds that make a distillate "sour" to the soduim plumbite or "doctor test." None of the refining agents investigated are effective in removing elementary sulphur. Elementary sulphur is very corrosive to the copper-dish or the copper-strip corrosion tests and its removal is necessary where corrosion specifications are involved. Elementary sulphur can be removed by treatment with a lead mercaptide solution and also by treatment with a sodium hydroxide solution which contains appreciable quantities of sodium sulphide."

Conclusions

His conclusions concerning corrosion of various sulphur compounds were summarized thus:

"1. Mercaptans exhibited the widest range of reactivity forming the corresponding metal mercaptides with cobalt, nickel, lead, lead alloys, antimony, copper, copper alloys, mercury and silver. These mercaptides decompose on moderate heating, forming the corresponding metal sulphides and alkyl sulphides.

"2. Hydrogen sulphide was next in order of reactivity forming the corresponding metal sulphides with iron, lead, lead alloys, antimony, copper, copper alloys, mercury and silver.

"3. Elementary sulphur was highly corrosive to copper, mercury and silver forming the corresponding metal sulphides. Elementary sulphur was not markedly corrosive to any of the other metals investigated.

"4. In the absence of water, alkyl sulphates and sulphfonic acids were not markedly corrosive to any of the metals investigated.

"5. Alkyl disulphides, alkyl sulphides, sulphones, sulphoxides, thiophene and carbon disulphide were not markedly corrosive.

"6. The presence of water in appreciable amounts increased markedly the corrosive action of naphtha solutions of mercaptans, hydrogen sulphide, alkyl sulphates, and sulphonic acids. The ionization of these compounds in water solutions results in an increased activity.

"7. Heat in moderate amounts was found to increase the corrosion effects.

"8. Among the metals investigated, copper, silver and mercury were most widely affected. Chromium and tin were least affected."

Discussions

In the discussion of this paper Dr. Read stated that different classes of sulphur compounds should be considered separately. Dr. Egloff said that earths do not remove sulphur compounds. He was also of the opinion that the effect of nitrogen compounds had not been sufficiently considered. Such compounds are invariably present in petroleum and oxidation of only a small amount to nitric acid would have a corrosive effect far greater than a great deal more sulphur. It was also remarked in the discussion that sulphur dioxide has a marked effect on removing all sulphur compounds except methyl mercaptans and the sulphur dioxide excess can easily be removed. Dr. Egloff then questioned whether dimethyl sulphate was present in oils. He stated that the components were unknown and that therefore, the laboratory synthetic mixtures do not correspond in properties with the natural oils.

A. P. I. Committee on Corrosion Named

New York.—President E. W. Clark of the American Petroleum Institute February 16 announced the appointment of a temporary committee named to form a policy on corrosion work, which is later to be recommended to the Institute with suggestions on the scope and character of investigation necessary to carry on effective work against corrosion.

This committee has further been asked by President Clark to recommend an appropriate form of organization and the personnel of a general committee on corrosion. He stated that it would be necessary for the temporary committee to study and classify the important corrosion problems and also to ascertain what steps have been taken toward the prevention of corrosion by the various branches of the industry.

The temporary committee is composed of the following men:

F. N. Speller, National Tube Company, Chairman.

E. P. Bly, Standard Oil Company of California.

W. G. Heltzel, Sinclair Oil & Gas Company.

F. Ray McGraw, Standard Pipe Line Company of Louisiana.

H. F. Perkins, Gulf Refining Company.

Ralph J. Reed, Union Oil Company of California.

C. R. Weidner, Prairie Pipe Line Company.

C. C. Lakin, Standard Oil Company of Indiana.

Non-Corrosive Ferrous Alloys

Dr. John A. Mathews, of the Crucible Steel Company next read a paper entitled "The Non-Corrosive Ferrous Alloys." He divided the non-corrosive steels into two classes (1) those that harden by quenching and (2) those that do not harden by quenching. The first group includes only the products known as "stainless iron" and "stainless steel." Needless to say, both of them are "steels", but the term stainless iron is limited to a product 0.12 carbon or lower, and usually containing from 12.0 to 14.0 per cent chromium. This is the commercial stainless iron, even though it is sometimes sold under identifying brand names.

"As to the specific field of usefulness of stainless iron, it may be noted that there are many engineering requirements where it is desirable to couple non-corrosive features with good mechanical properties. This alloy, notwitstanding its very low carbon content, responds very well to heat treatment, and furthermore, after hardening it retains its physical properties up to relatively high tempering temperatures. This gives it valuable properties for use up to moderately high operating temperatures, such as are met in steam-boiler, valve or turbine applications. After quenching a 0.10 carbon stainless iron from 1750 degrees F., it may then be tempered up to 950 degrees F., and not fall below

135,000 psi—Yield Point.
160,000 psi—Ultimate Strength.
17.5 per cent—Elongation in 2 in.
55 per cent—Reduction in Area.
325 per cent—Brinell.

Decrease Hardening Capacity

"With both the iron and the steel, increasing the chromium content above about 14.0 per cent causes a decrease in hardening capacity with some gain in stainlessness under severe conditions. Conversely, with chromium constant at about 12.0 per cent, raising the carbon above 0.40 per cent does little good so far as increasing initial hardness is concerned, and the higher carbons, after tempering at, say, 1000 degrees F., may be softer than the lower carbons for the same degree of tempering and decidedly less stainless. If greater hardness than normal 0.30 per cent carbon yields is necessary, one must use a steel in which both carbon and chromium are increased.

"In both stainless iron and steel we frequently find small additions of silicon, nickel, copper, molybdenum, etc., added for some specific purpose. The normal

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New Efficiencies Obtained in Recovery Methods

Production symposium reveals extent of research being done toward conservation

By SPENCER W. ROBINSON

New York. — Discussions of new methods in the application of air and gas lifts as well as pressure restoration and other subjects dealing with increased recovery, occupied the greater attention of engineers at the Production Symposium held here last Wednesday during the annual meeting of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers. The program for this session, however, had been arranged to bring out the latest developments in practically all engineering activity now being furthered by the operating and transportation branches of the industry.

The extent to which the industry is concerning itself with the problem of increasing the ultimate recovery from sands as well as increasing present production efficiency, can easily be seen by the remarkable amount of research now being undertaken along this line. In the short time of five months between the last meeting of the Petroleum Division in Tulsa, many new aspects have been developed that promise great advancement in production economy.

The meeting here was well attended by production engineers and producing executives from every part of the country. However, it was thought advisable by the retiring chairman of the Petroleum Division, F. Julius Fohs, to recommend that future meetings be held in places where a greater number of the men actually engaged in the field work could participate. No definite meeting place was decided upon and the matter was left for the attention of the incoming officials most of which have indicated that the next session will be taken closer to the oil country.

Progress of Gas Lift

E. O. Bennett, Chief Production Engineer of the Marland Oil Company of Texas, opened the Production Symposium with a prepared discussion on "Some New Aspects of the Gas Lift," which revealed the fact that experimental work conducted by the company has made it possible to control their volume and pressure on individual wells in the application of the gas lift and thus have been able to materially increase their daily recovery as well as ultimate recovery. It was also shown that by the proper control of volume and pressure it is possible to hold back the water where conditions exists such as are now being experienced in the Panhandle field.

NEW OFFICIALS OF THE PETROLEUM DIVISION

Of the American Institute of Mining and Metallurgical Engineers

Chairman, John M. Lovejoy, V.-P. Amerada Petroleum Co., Tulsa, Okla.

Vice Chairman for Refinery Engineering, Walter Miller, V.-P. Marland Refining Company, Ponca City, Okla.

Vice Chairman for Production Engineering, J. B. Umpleby, V.-P. Goldelline Oil Corporation, Oklahoma City, Okla.

Associate Vice Chairman for Production Engineering, T. E. Swigart, Production Engineering, Shell Company of California, Los Angeles, California.

Vice Chairman for Production, W. E. Wrather, Consulting Geologist, Dallas, Texas.

Associate Vice Chairman for Production, Joseph Jensen, Associated Oil Company, Los Angeles, California.

Vice Chairman for Transportation Engineering, F. K. Haskell, Manager Empire Pipe Line Company, Bartlesville, Oklahoma.

Vice Chairman for Economics, Joseph E. Pogue, Consulting Geologists, New York City.

Most of Mr. Bennett's discussion dealt with work of his company in the Panhandle section where operating problems have required the utmost attention from production engineers. The result of this work has been the development of several new methods for use in gas or air lift practice as well as a piece of equipment for freeing the wells of paraffin, a result of great importance itself.

The value of this work, in the opinion of those attending the session, could not be emphasized too much. The paper by Mr. Bennett and Mr. Sclater is published elsewhere in this issue.

Following the presentation of this discussion, A. W. Ambrose, production manager for the Empire Gas and Fuel Company stated that but for the development of the air lift in the Seminole area, production in this section would be from 75,000 to 85,000 barrels less per day than is now the case. Mr. Ambrose has found that through the use of the air drive being experimented with by his company in the El Dorado, Kansas, field, the air returns as an air-gas mixture that is not explosive. They are recovering about three gallons of gasoline per thousand cubic feet of this mixture in a gasoline plant.

Capillary Retention of Petroleum in Unconsolidated Sands was the title of a paper presented by Professor L. C. Uren with the University of California which was followed by a discussion of surface tension factors developed in flotation research and their application to flow of crude oil. This discussion was participated in by A. W. Ambrose, Professor A. F. Taggart of the Columbia University, A. W. Fahrenwald, whose discussion was read by Chairman Fohs and several others from the floor.

Equipment for Foreign Fields

Jumping from this subject to that of problems in foreign operation, Chester A. Naramore, with the Sinclair Refining Company, stressed the need for standardization of all equipment consigned for use in foreign fields. He showed how thousands of dollars have been lost without mentioning the time and trouble involved due to the lack of standardized equipment now being used in most foreign fields.

In the discussion which followed this subject it was pointed out that supply companies were unable at present to maintain warehouses or stores in Venezuela and other South American countries due to the restrictions inflicted by these governments.

Some comment was also made on the problem of producing oil in the lake at Venezuela as well as the trouble encountered in this territory by the effect of erosion on the bottom of the tubing or flow string causing the wells to bridge or sand up. From this discussion it was indicated the necessity for keeping the wells flowing or suffer great expense and possible loss of the well all together. In the newer district, however, the wells are being drilled deeper, sand is firmer, with more gas, making possible a higher re-

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PERSONAL MENTION-MEN YOU KNOW

R. W. Wingo, who has been with the production department of Crown-Central Oil Corporation, Houston headquarters, for several years, has recently resigned to go with Harris & Wilbern, independents, 1316 F. & M. Building, Fort Worth.

Dr. Donald C. Barton, chief of the Gravometric and Magnetometric section of the Geophysical Research Corporation, Houston office, returned early last week from a trip to Oklahoma.

F. A. Leovy, vice-president of the Gulf Oil Corporation, Pittsburg, spent several days last week visiting in Houston on business.

Jack Viets, scout for the Sun Oil Company, with headquarters at Wichita Falls, has been assigned the North Texas district to succeed George Prendergast, who recently resigned as scout to enter the contracting business.

E. B. Reeser, president of the Barnsdall Corporation, is in Los Angeles inspecting properties and operations of the Barnsdall Corporation of California, which maintains headquarters at Tulsa and New York.

R. F. Garland, president of R. F. Garland and Company, of Tulsa, accompanied by John Wheeler, of the Company's legal department, are on a trip East, where they will visit on company business in New York and other points.

R. E. Nichols, formerly secretary and treasurer of the Peters Petroleum Corporation of Tulsa, has become associated with R. F. Garland and Company of Tulsa as comptroller and assistant secretary.

G. H. Blankenship, formerly head of the land department of the Indian Territory Illuminating Oil Company of Bartlesville, has become head of the land department of R. F. Garland and Company of Tulsa.

S. F. Shaw, consulting engineer, has been retained by the Carter Oil Company as consultant following his introduction of the Shaw method in the wells of that company in Seminole field. More than half of the Carter production, totaling approximately 42,000 barrels daily, is being produced by use of air and gas lift. C. L. Quick has been appointed by the Carter Oil Company to carry out the details of the installation.

Frank J. Ackman, district representative of Northrup Equipment Company of Parkersburg, West Virginia, was in Houston this week, covering his territory through the Gulf Coast region. Mr. Ackman's headquarters are in Shreveport.

ALF G. HEGGEM
President Tulsa Chamber of Commerce

Alf G. Heggem, manufacturer and oil producer, recently was elected president of the Tulsa Chamber of Commerce. Mr. Heggem is president of the Oil Well Improvements Company. He is also an oil producer. He succeeds W. G. Skelly as president of the Tulsa civic organization.

A. F. Denniston, lease buyer for the Magnolia Petroleum Company, who was recently transferred from Houston to Dallas, is recovering from a severe case of pneumonia. Denniston is a veteran employe of Magnolia, and enjoys a wide acquaintance throughout the Mid-Continent and Coastal fields.

Dr. George Steiner, geologist, specializing on geophysical surveys, with headquarters in Houston, is now making an extensive torsion balance survey in the vicinity of New Orleans.

E. Jablonski, geologist with the Vacuum Oil Company in Poland since 1924, has been transferred to Texas to do geological work with the Vacuum. He arrived in Houston last week and will remain several days in the headquarter office of the Southwest Division before going to Eastland, Texas, where he will be stationed. Mr. Jablonksi has for several years ranked high among the European geologists, being a graduate of two European universities, where he specialized in geological theory, and has had years of practical training. According to Mr. Jablonski, Polish production is on a very noticeable decline, production now hinging around 360,000 barrels monthly. This monthly figure would, at the same rate of output for the remainder of this year, place the annual total at roughly 4,220,000 barrels against 5,600,000 barrels for 1926 and 5,900,000 barrels for 1925. Four-fifths of Poland's production is now coming from the Boryslaw field, Mr. Jablonski said. He is greatly interested in the modern stride seen in drilling and production in the American fields he has seen.

Charlie White, formerly with the T. & P. Railway, has recently been employed by Vacuum Oil Company as clerk in the scouting department, Eastland office.

Frank B. Firmin, for several years cashier of the Casper offices of the Ohio Oil Company, has been promoted to the office of assistant treasurer of the company at Findlay, Ohio. Mr. Firmin will go to Findlay at once to assume his new duties.

Arch M. Sellery, head of the Ohio Oil Company land department in New Mexico, and one of the best known oil men in the Rocky Mountain States, died February 15 in the Masonic Hospital in El Paso, Texas, after an illness of a month. Mr. Sellery had been a resident of Artesia, New Mexico, for the past two years. He was 38 years old at the time of his death.

Frank Seibert, 20-year-old employe of the Gulf at Borger, Texas, was drowned in a storage tank of oil February 18. He fell into the tank while trying to take a sample in a pail. His body was moved to Chickasha, Oklahoma, for burial.

Price Will Not Stop West Texas Drilling Campaign

Additional pipe lines and tanks are being provided to care for oil produced in Church and Fields area; Pecos well increases

By H. H. KING
Staff Representative

San Angelo, Texas—Reduced crude prices posted Tuesday by Humble and the Kay County Gas Company on all oil in Crockett, Upton and Crane Counties will not hold back the development of the Church & Fields area, Crane County, where proration of crude runs have been in effect for several weeks by Humble. The new price schedule affords an average of less than $1.00 per barrel for the oil being produced in the above three counties, while the highest gravity oil produced in the counties will only bring $1.12 per barrel at the well. Development work in Crockett and the lower end of the Crane-Upton area will slow down for better prices, but the recent completion of an 8000-barrel producer and two others making 1850 and 2900 barrels in the Church & Fields area has given life to a drilling rush, with 56 operations listed early this week.

A third pipe line connection for the Church and Fields area was contracted for early this week, when the Southern Crude Oil Purchasing Company, a subsidiary of the Dixie Oil Company, placed order for about 16 miles of six-inch pipe and a pump station unit to extend its McCamey-Hurdle district gathering system up to the new flush field. Southern Crude has contracted to take a maximum of 10,000 barrels daily from the Tidal Oil Company in the Church & Fields area, and is also soliciting other connections. This line is to be operating within 30 days, and will feed into two four-inch lines on the Dixie-Hughes lease, thence to tank farm and tank car rack at McCamey, located on the Orient railroad. Humble has a six-inch line serving the Church & Fields and McElroy fields, with another line of the same size building, while Gulf is building into both with an 8-inch line from tank farm and car rack on the Texas Pacific railroad near Midland. Gulf's line is to be operating early in March.

Magnolia has started work on moving in its first 55,000-barrel steel tank to serve its properties in the Church & Fields area, and the Eastland Oil Company-Collett-O'Keefe interests have broken ground for a 64,000-barrel steel tank to be built on the lower end of their 80-acre lease, with five 10,000 and one 37,500-barrel tanks ordered. The latter interests have the southeast offset producer to the 8000-barrel gusher brought in February 13 from sandy-lime pay at 2889-2953 feet by Simms Oil Company and Atlantic Oil Producing Company. This big well is flowing about 7000 barrels daily, with no water of b. s. in evidence, and after gauging the production in tanks to determine the University of Texas' royalty share, the oil is going to earthen storage, except for the 200 barrels per hour being accepted by Humble Pipe Line Company. The Eastland-Collett-O'Keefe well was not drilled into the pay but 15, and steel storage is being provided to enable the owners to carry the hole as deep into the pay as the offset gusher.

Will Use Air

Air lift methods are to be employed by the Simms & Atlantic Oil Producing Company on the big gusher before the natural flow ceases, while the Eastland Oil Company & Collett-O'Keefe Interests are planning to do likewise. This practice when once started and proven successful will sweep the field, as is the case in the Greater Seminole area at present.

Pecos County's sensational shallow oil producer in the Yates field continues to gain in production, and averaged above 3800 barrels of 30 degrees gravity pipe line oil during the four days prior to Tuesday of this week, with about 60 pounds of back pressure being carried on the well. This well was completed by Mid-Kansas & Transcontinental Oil Company February 11 with a natrual flow of 3550 barrels from sandy-lime pay at 999-1002 feet, and is cased with 8¼-inch pipe. The well is 537 feet west of the discovery producer of the Yates field, and both are flowing into a 55,000-barrel steel tank. A second 55,000-barrel steel tank is nearing completion, while two more tanks of the same size are enroute. The Illinois Pipe Line Company, a subsidiary of the Ohio Oil Company, which also controls the Mid-Kansas Oil & Gas Company, is providing the tankage, and is also building a six-inch pipe line from the tank farm to McCamey, Upton County, to supply 5000 barrels of crude daily on contract to Humble.

Mid-Continent and Transcontinental are scheduled to complete an east offset to the Yates discovery well this week, while a fourth test known as Yates 1, section 61, was drilling at 1140 feet late Monday. This well has a surface elevation of 2612 feet, while the elevation of the discovery well is 2398 feet. Mid-Kansas and Transcontinental are building a field camp, warehouses, and setting up a complete outfit to develop their Yates property in a systematic manner.

Deeper drilling on the Texon Oil & Land Company's I. G. Yates 1, located about four miles southeast of the Yates field and at the center of section 55, failed to increase the oil production, and operations were suspended at 1300 feet early this week. This well logged the top of the pay at 1268 feet, with a surface elevation of 2250 feet, and tested good for a small producer in the upper part of the pay horizon. The Crosby Drilling Company has moved in a National machine to drill I. G. Yates 1, located near the center of the south line of section 70, block 1, and north of the Mid-Kansas-Transcontinental property. The Dixie Oil Company's core drill test in the southeast corner of section 539, A. & B. survey, and located about three miles northwest of the Mid-Kansas-Transcontinental property, is reported to have developed a good show of oil at 340 feet last week, thereby adding more interest to the eastern part of Pecos County.

Papers on Pumping For A. S. M. E. Meeting

Tulsa.—Two papers on pumping will be presented at the meeting of the Mid-Continent Section of the American Society of Mechanical Engineers here Friday night at the Mayo Hotel.

W. R. Layne of the Byron Jackson Pump Manufacturing Company, of Berkley, California, will present a paper on "Centrifugal vs. Reciprocating Pumps in Pipe Line and Refiner Service."

The other paper will be read by Hollis P. Porter of the Gypsy Oil Company, Tulsa, on "Centrifulgal vs. Reciprocating Pumps in Oil Field Use Above Ground."

Discussion will be led by L. F. Bayer of the Tidal Refining Company and William G. Heltzel, engineer with the Sinclair Pipe Line Company.

Flush Producers Open Up Much Territory for Development in Hutchinson County

Amarillo, Texas.—The completion of flush oil producers on the southeast and northwest edges of the oil producing area in Hutchinson County during the past week opens the way for considerable new development. Marland Oil Company's Cal Merchant 2, located on the east line of section 38, and a southwest offset to the Prairie et al's Merchant 1, materially enhances the value of acreage lying north of the river and in the western edge of the county, by flowing 45 barrels of pipe line oil hourly with three million cubic feet of gas from sandy-lime pay at 2825-56 feet. This well hit the best pay at 2840-42 feet, and has a surface elevation of 2928 feet. Prairie's Merchant 1 opened this area for development October 16, 1926, flowing 40 barrels per hour at 2717-40 feet, with a surface elevation of 2832 feet, and continues to flow about 40 barrels daily, although the hole has been reconditioned several times.

The McIlroy Oil Company's E. Cockrell 1, located in the northeast corner of section 4, block B-3, widened the Hutchinson County area to the southeast with a flush flow of 1100 barrels of pipe line oil after shot of 210 quarts at 2976-3050 feet, and gauged 725 barrels on the second 24-hour test and 800 barrels on the third day. This well has a surface elevation of 3075 feet. Phillips Petroleum Company scored a 50 barrel per hour producer late last week when a 70 quart shot at 2872-2900 feet was placed in the J. A. Whittenburg-Patsburg 5.

Leases in Gray and Wheeler Counties being served by Humble Pipe Line Company were the only section of the Texas Panhandle hit by the widespread crude price cuts Tuesday morning. Humble did not alter its flat price of $1.25 per barrel for crude in Carson and Hutchinson Counties, and the readjustment of prices in Gray and Wheeler Counties amounted to a small cut. Although the Carson-Hutchinson County crude escaped the cutting Tuesday, the hopes of many of the small producers in this area were shattered, as it was generally believed that a substantial price increase would take place with the completion of direct pipe line outlets in April.

Tank car movement of Panhandle crude to distant refining and marketing centers has registered a decline for the past three weeks, and during the week ending February 16 a daily average of 315 cars of crude were shipped. The Prairie Pipe Line Company is reported to have discontinued its tank car shipments to Mexia tankage last week, after having moved in excess of a half million barrels rather than to build tankage in the Panhandle. Prairie has been piping this crude via eight-inch line from Kings Mill tank farm to McLean, and loading out at rate of five to seven thousand barrels daily.

The Shamrock field, Wheeler County, again lived up to its erratic performances during the past week when the World Oil Company's J. H. Jackson 2, a south offset to a 40-barrel per hour initial completion, made only five barrels of oil with a flow of 8,000,000 cubic feet of gas after shot of 90 quarts at 2235-65 feet. This well sprayed more oil prior to the shot.

Marland Oil Company's Burnett 1-H, widened the Burnett pasture oil producing area on the Carson-Hutchinson County line about one and one-half miles to the west with a flush production of 600 barrels during the first 18 hours. This well encountered the broken sandy-lime and arkose pay at 3065-78 feet, and due to the casing seat breaking the production dropped off rapidly. This well is located on east side of section 125, and is on one of the tracts obtained by Marland last September from Landergrin, Blasdel & Fuqua for the drilling of one test on each lease, and carrying the trio for a one-eighth over-riding royalty. When production on any single well drops to 90 barrels or less daily, the trio are to pay 25 cents per barrel for lifting costs. Marland's most productive leases in Carson County have been obtained from the above trio on an over-riding basis.

PANHANDLE OPERATIONS

Amarillo, Texas—Condensed summary of field operations in the Texas Panhandle district at the close of the week ending February 19, is listed below by counties, with comparative totals for the previous week:

	Completions	Active Tests	Shut Downs	Rigs and Derricks	Locations	Totals
Armstrong Co.	..	..	1	..	..	1
Briscoe Co.	..	..	..	..	1	1
Carson Co.	4	48	6	21	5	84
Castro Co.	..	1	1	..	1	3
Childress Co.	..	..	1	1	..	2
Cochran Co.	..	1	..	..	..	1
Collingsworth Co.	..	2	1	..	1	4
Dallam Co.	..	1	2	..	..	3
Deaf Smith Co.	..	1	..	1	..	2
Donley Co.	..	1	..	..	..	1
Gray Co.	1	37	5	10	5	58
Hansford Co.	..	1	2	..	..	3
Hartley Co.	..	5	3	..	..	8
Hemphill Co.	..	..	3	..	..	3
Hutchinson Co.	17	154	18	67	38	294
Lamb Co.	..	..	1	..	..	1
Lipscomb Co.	..	..	2	1	..	3
Lubbock Co.	..	1	..	..	..	1
Moore Co.	1	10	1	..	..	12
Motley Co.	..	..	1	..	..	1
Ochiltree Co.	..	..	3	1	..	4
Oldham Co.	..	..	..	1	..	1
Parmer Co.	..	..	1	..	..	1
Potter Co.	..	..	2	1	..	3
Randall Co.	..	..	..	..	2	2
Roberts Co.	..	2	3	3	..	8
Sherman Co.	..	2	..	..	3	5
Swisher Co.	..	..	1	..	1	2
Wheeler Co.	2	13	5	12	5	37
Totals	25	280	63	119	62	549
Totals prev. week	12	256	75	122	79	544

Prairie Buys Lease in Brown County

Ft. Worth, Texas.—Shallow oil producing leases held by J. S. Cosden, Inc., in the Cross Cut district, Brown County, Texas, were sold to the Prairie Oil & Gas Company February 21, for a cash consideration amounting to slightly above $1,000,000. The transaction was made at Independence, Kansas, with A. G. Reed, manager of the Fort Worth offices of Cosden, Inc., representing the latter concern. This deal involves approximately 600 barrels of settled high gravity oil production coming from 52 pumpers, and 1760 acres of leases. It is estimated that Prairie will have between 50 and 75 proven locations to drill on the properties. J. S. Cosden, Inc., retained producing properties held in Archer, Young, Shackelford and Ector Counties, Texas.

Two Wells Completed in Duffer-Gholson Field

Ranger, Texas.—The Duffer-Gohlson field, located about four miles southeast of Ranger, added two flowing wells from the deep pay early this week with a combined output of 1145 barrels of 40 degree gravity oil. The discovery well of this field was completed January 2, 1927, flowing 685 barrels natural from sandy-lime pay at 3470-82 feet by J. M. Gholson and others on the B. L. Duffer land, S. N. Mathais survey, and is holding above 500 barrels daily. Gholson et al's Duffer 2 flowed 425 barrels by heads during the 24 hour period ending Tuesday morning from pay at 3460-84 feet, and Duffey 3 is to be drilled deeper while flowing 30 barrels of 40.7 degree gravity oil per hour with two million gas at 3470-82 feet. Gulf Production Company's Duffer 1, located south of the discovery lease is scheduled to drill into the pay late this week. More than a half dozen new locations have been made for this new field.

A new shallow pool for Western Brown County was promised early this week by the discovery of a light flow of wet gas production from the G. P. Mitcham et al's wildcat test on the S. M. Keeler farm from one foot of sand at 1423-24 feet. This test is located in the northeast corner of the southeast quarter section 39, H. T. & B. survey, and on a line between the Fry and Cross Cut districts. The flow of wet gas was reported as being approximately a half million cubic feet, and storage is being provided to drill in the well.

The Fry shallow high gravity oil area in Western Brown County sustained a sharp drop in daily output during the past week due to a lull in new completions, and natural drop of flush production from recent flowing wells. Pipe lines serving this field are now in position to handle all oil produced. The Fry field proper was making about 12,650 barrels daily at the close of last week, and the size of new completions is much smaller.

Dr. W. A. Price, consulting geologist, Houston, has moved his office to 1312 Neils Esperson Building. Dr. Price has recently returned to Houston after spending three months in Jackson County in the Edna gas field area.

Volume and Pressure Control for Wells on Gas Lift.

(Continued from page 28)

It is only used in wells that are flowing. The reason for this being that while a well is flowing, the paraffin accumulations cut from the wall will be carried in suspension with the fluid, leaving a clean hole above the tool for easy removal.

A small "Flow Devil" is used for running through 2½-inch tubing. The small size scraper uses a polish rod for a sinker bar. The scraper is made by a welder from a piece of scrap pipe at an approximate cost of eighty-five cents.

The large scraper shown in Figure 8 is readily lowered into 4½-inch tubing against a flow rate of 5000 barrels per day and two million cubic feet of gas. The scraper as used has been found more successful than the application of heat in keeping wells on the gas lift free from paraffin. It is only necessary to run the scraper through the flow line once a day and in some cases once every second and third day.

Since the development of the scraper, it has been found unnecessary to ever shut down a well on account of paraffin troubles.

The Chart of Fig 10 shows the effect of paraffin accumulations on the working pressure in a gas lift well. A close observation of the chart will show working pressure to be rising slightly as the thickness of the paraffin deposit increases, resulting in a decreased area of flow. The waver in the line shown occurs at the time the scraper is run in the well. The drop in pressure after running the scraper is due to the removal of paraffin and corresponds to an increase in tubing size. The flow is not interrupted while running the scraper and the slight differential in pressure across it has no appreciable effect on the production while it is being used.

The time required for running the scraper and cleaning a well is from fifteen minutes to one hour a day. Paraffin accumulations inside the tubing fill the breaks at the tubing collar, thereby lowering the resistance to flow. A scraper of different gauge may be run through the tubing to shave off the paraffin accumulations, leaving the effective bore almost any size desired within the limits.

The development of the paraffin scraper has made possible the elimination of swabbing wells in the Panhandle District. Until the scraper was developed, it was practically impossible to economically produce small wells in this territory. Pumping has given so much trouble on account of paraffin that in most cases it would not pay. Wells of five and ten barrels that could not be operated except at a loss by swabbing and pumping have been kept on steady production by flowing with the gas lift through small tubing. While the gas factor for small wells is somewhat higher than that for large wells, it has not been excessive and has permitted operating wells where as much as fifteen cents per 1000 cubic feet must be paid for gas.

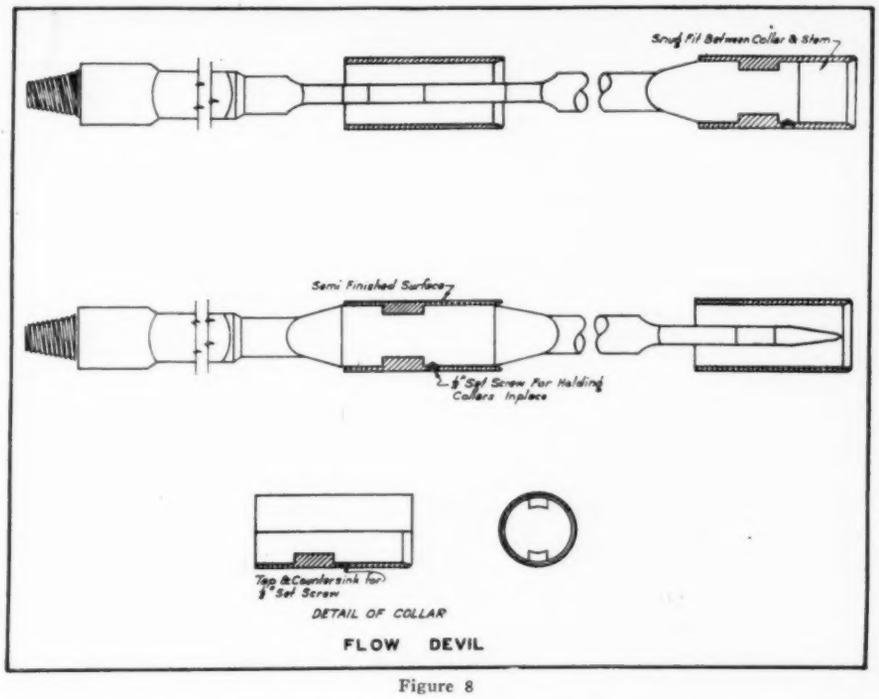

Snug Fit Between Collar & Stem
Semi Finished Surface
¼" Set Screw For Holding Collars Inplace
Tap & Countersink For ¼" Set Screw
DETAIL OF COLLAR
FLOW DEVIL

Figure 8

Heaters on Flow Lines

On account of the low atmospheric temperatures existing in the Panhandle, heating the flow lines at the wells during the winter period is necessary in order to prevent them from becoming plugged. It has been found advantageous to apply the heat to the gas and have it imparted to the oil in the upper part of the tubing inside the well. This keeps the paraffine from forming in the top section of the tubing and makes it slightly easier to start the scraper in the well.

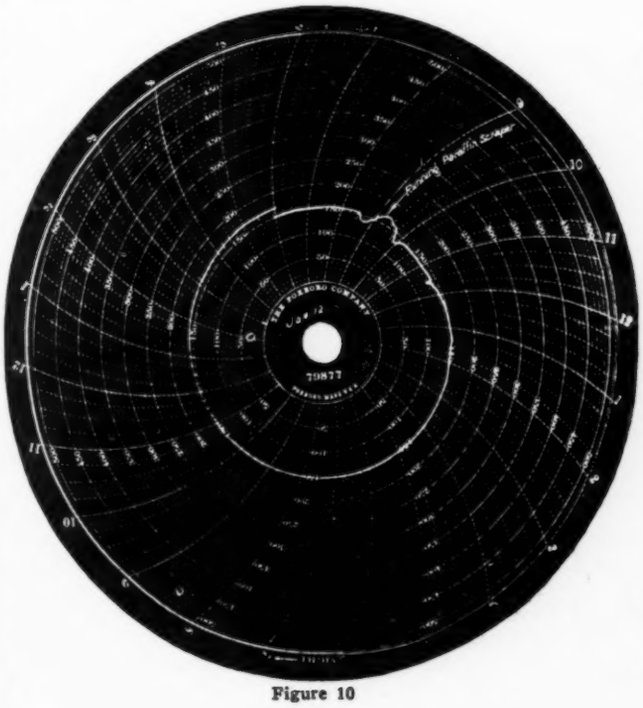


Figure 10

The effect of some heat at the top of the well is to keep the tubing open to its maximum diameter where the expansion of the gas is greatest. When heat is put in the well as described, oil can be delivered to the stock gauge tanks through the flow lines without the addition of more heat.

Types of Heaters

The two principal types of heaters used in connection with gas lift work are shown in Figure 11. The steam heater has been more successful, owing to the difficulty on account of breakage in welds in the direct flame type. The flame type, however, is more efficient.

Volume Control of Gas to Individual Wells

It has been found that a constant volume and pressure control to individual wells is absolutely essential and necessary to realize best results by the gas lift methods. This is especially true where a definite pressure must be maintained to hold encroaching bottom water in check.

Hand control when carried out by skilled operators has given very satisfactory results. A good operator can put from 10 to 25 per cent more oil in a tank than a poor one on a large capacity well that is critical and sensitive to pressure changes. Manual control on a large lease with twenty or more wells on the gas lift from a central plant, is expensive and while fair results can be obtained they are not as satisfactory as full automatic control.

Some operators prefer manual control however, it is the opinion of the writers

that automatic control is better and that its cost is soon paid for and considerable earnings shown by the increased production resulting from its use. The automatic control is new but is coming into general use in the Texas and Mid-Continent Fields. The writers prefer to use the central control plant installation handling a group of wells from each control station. Figure 7 shows a diagrammatic layout of the control distributing points which service several wells.

An orifice is installed in each individual well line as shown at 3. 1 shows the regular orifice meter equipment. 4 is a pressure line which connects to a pilot valve built in the rugular metering equipment. Two lines run from the pilot valve to a balanced piston diaphragm control valve, 2, which is placed ahead of the orifice. As the differential changes, it operates the pilot valve which admits gas to either the top or bottom of the diaphragm chamber. After the flow is increased, the differential becomes greater and admits gas to the proper side of the control valve which closes and restricts the supply. When the volume decreases, the reverse action takes place.

This type of equipment is very valuable in maintaining steady production and constant gas factors. This type of control will maintain daily production constant within one half of one per cent, where it is not affected by natural decline at a greater rate.

After a well has been studied and the proper size orifice installed the well will operate steadily. As the production changes, due to natural decline, the size of the orifice must be changed from time to time to maintain the proper working differential. Orifice changing valves, commonly used in the natural gas industry, are valuable in this work and eliminate the necessity of by-passes in the installation.

The arrangements of the control stations in the diagram of Figure 12 allows a large volume of high pressure gas to become packed in the lines between the control station and the compressor plant. The gas packed in the system is sufficient to care for surges when starting wells or changing working conditions.

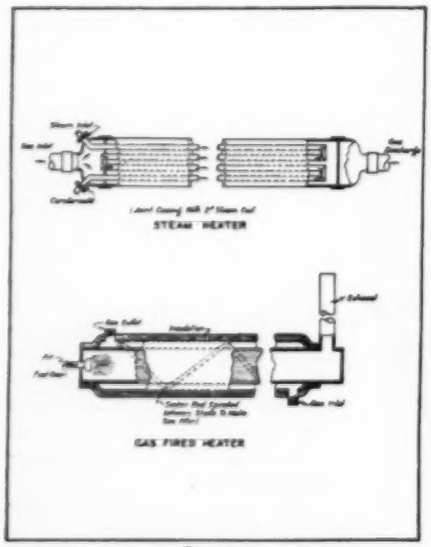
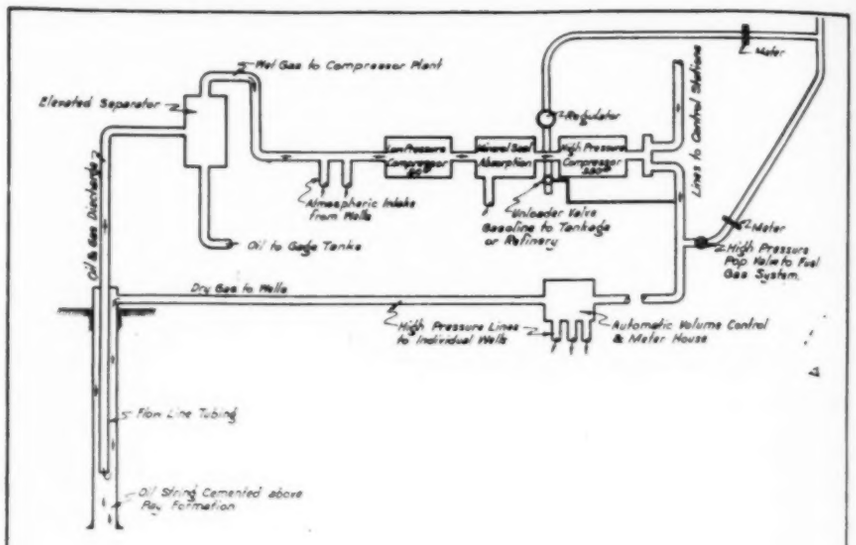


Figure 11


Elevated Separator
Oil & Gas Discharge
Oil to Gage Tanks
Dry Gas to Wells
Flow Line Tubing
Oil String Cemented above Pay Formation
Meter
Lines to Control Stations
Regulator
Atmospheric Intake from Wells
Unloader Valve
Gasoline to Tankage or Refinery
High Pressure Pop Valve to Fuel Gas System
High Pressure Lines to Individual Wells
Automatic Volume Control & Meter House

FLOW DIAGRAM FOR GAS LIFT IN CONNECTION WITH GASOLINE ABSORPTION PLANT - RE-CYCLING METHOD

Figure 12

The surplus gas stored in the system permits operation from a central plant without upsetting the equilibrium of the system. It is more economical to build a central plant than to install individual compressors at each well from the standpoint of both equipment and labor. It is, however, very desirable to have two or three portable compressors mounted on wheels which may be connected up to wells to find out their characteristics before the installation of a large plant on a lease. By testing each well for a sufficient period, the total plant requirements may be ascertained and the correct size of compressors determined.

Location of Control Station

It is important to have control stations located at least 200 feet away from the nearest well. This is to permit temperature equalizations before the gas reaches the well, instead of injecting the low temperature gas directly into the well. The low temperature occurs where the gas is expanded through the control valve from the header system to the individual well lines.

Orifice Method of Well Control

A method of control which will give stable operation without the necessity of any automatic equipment is also being used in the Texas Panhandle. Its use is made possible by the physical law governing the flow of gas through small orificies under high differentials. Where the differential is equal to, or greater than 50 per cent of the upstream pressure, the flow through the orifice is critical and is dependent upon the upstream pressure alone. This is due to the fact that the gas has reached its maximum velocity which is equal to the molecular velocity within the gas. This is also the velocity of sound through the gas at the exisiting pressure. After the maximum velocity is reached the volume flowing through a given sized orifice depends upon the density of the gas. Density in turn is dependent upon pressure. This then makes the volume flowing through the orifice a function of the upstream pressure and of it alone. This condition of flow exists until the differential is equal to, or greater than 50 per cent of the upstream pressure. The size of the orifice to use may be determined by the following equation (*):

$$Q = \frac{KD^2 \times F \times P}{TG}$$

Where Q equals cu. ft. of gas flowing in 24 hours.

K is a coefficient determined by experiment and found to be 395.

D equals diameter of orifice in inches.

F equals a factor for correcting the gas on account of its deviation from Boyles Law. (This term may ordinarily be neglected).

P equals the absolute pressure in lbs. per sq. inch above the orifice.

T equals the absolute temperature of the gas above the orifice.

G equals the gravity of the gas, air=1.0.

In a control system such as just described, it is necessary that the line pressure at all times be more than twice the well working pressure. The volume of gas delivered to the well will then be constant, regardless of fluctuations in the well, and will stabilize the production the same as the full automatic control.

Excess Gas Due to Re-Cycling

In passing through the complete cycle

(*) New Methods for the Control and Operation of Gas Wells, by E. O. Bennett and H. R. Pierce. Proceedings of the Natural Gas Association of America, 1925.

as shown in Figure 12, a certain amount of gas, (natural gas factor), is taken from the oil bearing formation over and above the amount required for return to the well. This surplus gas, after being compressed, is discharged from the gas lift system through a pop valve set at a pre-determined pressure, to a fuel system which serves lease requirements. By handling the residue gas in this manner waste is reduced to a minimum and it becomes unnecessary to draw on other gas wells to supply the fuel system for general lease operations.

An unloading device is arranged so that when the entire system, along with the fuel system, is packed to capacity, a valve on the high pressure plant discharge operates a valve which permits the surplus residue to blow to atmosphere, saving the excessive pressure on the system and compression cost in the plant. In operation it has been found that the surplus in the system just about takes care of the fuel requirements for the lease so that the loss is practically nil.

A supply of gas, other than that from the gasoline plant, is provided for the intake of the high pressure plant under control of an automatic regulator. This is to insure constant operation in case of a shutdown in the gasoilne plant.

Main Compressor Station

The main compressor plant may be of any standard type. The plant operated by the Marland Oil Company of Texas in the Panhandle consists of six 12" x 7" x 16" compressors, each driven by a 200-HP, 2200 volt, 3 phase, squirrel cage induction motor. All control equipment is of the oil immersed type and is located in a control room adjacent to the plant. The motors are connected to the compressors by short belts with idlers.

There is a large steam turbine driven generating plant built in the Texas Panhandle primarily for servicing field development and operation. In a compressor station as described, power may be obtained from this generating plant at approximately .7 of a cent per KWH. This rate and the low cost of electric prime movers makes electricity the most economical source of power for gas lift main stations, especially in this area where water conditions are bad and the gas contains much H_2S, making engine troubles numerous and severe.

Gasoline Recovery Plant

The gasoline plant used in the recycling program is of the conventional type, comprising low stage compressors and absorbers. The compressors handle the gas from atmospheic pressure at the wells to approximately 30 pounds discharge at the absorbers, where it enters the low stage header of the compressor station. The general schematic arrangement of the compressor plant is shown in Fig. 12. Details of the gasoline plant will not be discussed in this paper as they are familiar to most of us.

It is interesting to know that gas carrying but a trace of gasoline when injected into a well returns carrying a content as high as 1.6 gallons per 1000 cubic feet. The normal content of this gas, previous to the gas lift installation, was but 1.0 gallons per 1000 cubic feet.

Separators

Several types of traps or separators are in general use in gas lift installations. Where it is desired to hold back pressures on the well head, high pressure separators may be used. In some cases the pressure at the separator is sufficient to flow the wet gas through the absorption plant, thus eliminating the use of compressors.

Where atmospheric conditions are maintained in the separators, a 5x17 gunbarrel tank, equipped with vacuum and pressure relief valves, has proved to be very satisfactory on wells producing up to 1000 barrels per day and is much cheaper than regular oil and gas separators.

Where it is required to reduce the back pressure on a well to a minimum, it is advisable to elevate the separator high enough for the oil to flow by gravity to the gauge tanks.

In no case should a flow line, or discharge line, from the well to a tank or separator be horizontal. If the pipe is horizontal it allows separation of the oil and gas and decreases the efficiency of the lift on account of by-passing of gas.

The most efficient method of connecting an elevated trap or flow tank to the well head is by a line which gradually bends from the well to the tank and enters at an angle of about 45 degrees from the vertical. Precaution must be taken to insulate elevated flow tanks where congealing oils are produced and low winter temperatures prevail. It is also necessary to install headers in tanks under these conditions. It is extremely desirable to eliminate as many bends and fittings on the flow line as possible as each one introduces considerable friction and creates a corresponding amount of back pressure.

Condensate in Gas Gathering Lines

The gasoline condensate from the gas gathering lines is removed through proper drips, injected into individual gas lines feeding the wells through lubricators at the control stations, and helps to remove any paraffin which may accumulate at the bottom of the tubing.

Gas Lift Methods for Controlling Bottom Water Encroachment

In some locations oil bearing strata are immediately above and in direct contact with water bearing formations. This is particularly true in the Panhandle area where the top of the water bearing stratum exists at approximately sea level elevations. Above the oil formation in this region there exists a gas bearing stratum. This upper gas formation, while separated by as much as 200 feet from the oil, is open to the oil formation in spots.

Where wells have been producing by swabbing heavily or by flowing through a 6⅝-inch oil string with extremely large gas factors, the pressure in the upper gas region adjacent to the wells has been dissipated and the water surface has risen under hydrostatic pressure due to the decreased gas pressure above.

The extreme reduction of this pressure has caused the water to cone up at the well and eventually break through the oil strata, trapping off the oil and causing the well to produce water. If swabbing is continued under these conditions, or the natural flow allowed to take place, the well will continue to produce nothing but water. This will also occur if a well on the gas lift is improperly handled.

Conditions such as described above can best be remedied by use of the gas lift under back pressure. In most cases where proper installation is made the resistance to flow furnished sufficient pressure on the sand without the necessity of surface control. The best arrangement for flowing a well producing water is to pump the gas down between the casing and tubing and produce the oil through the tubing. The tubing may be raised off bottom to a point where the fluid head between its lowest extremity and the water surface, plus the additional head required to flow the oil through the tubing, will exert sufficient pressure on the sand to prevent the water from coming up through the oil. If the tubing is maintained too close to the water level, it will tend to make the well produce water to the exclusion of oil. Where a proper pressure is maintained to keep the water level down, the entrance of oil to the well will take place over the top of the water surface by lateral travel instead of cross bed travel and the water will be held in check. When water breaks through and wets an oil producing sand it excludes the oil by virtue of its greater surface tension. Water also migrates through a sand with less resistance on account of its greater fluidity.

In some wells a control of pressure is extremely critical. A few pounds increase or decrease on the same will materially change the oil and water ratio where wells are producing some water. In one particular instance, a well in the Panhandle district was producing 680 barrels of oil and 66 per cent water by swabbing. This well was fitted with 4½-inch tubing to within 400 feet of the bottom. Gas was introduced between the casing and tubing and the fluid flowed through the tubing. This well has since been producing 1700 barrels of oil per day on

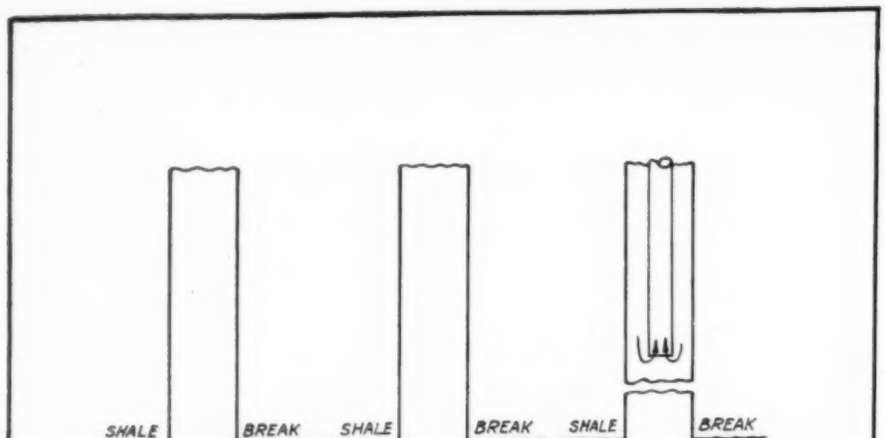


Figure 13

the gas lift and the water percentage was reduced to 25 per cent where it has remained constant.

The pressure required to flow the well is approximately 160 pounds. The estimated weight of the fluid column between the bottom of the tubing and the top of the water saturated formation is 150 pounds. Under this condition the total pressure on the water front is 310 pounds, which is sufficient to prevent it from coming up through the oil bearing formation. Lowering the tubing increases the resistance to flow on account of the greater distance the fluid must travel. This, however, decreases the hydo-static head between the bottom of the tubing and the surface of the formation in the well at a greater rate than the pressure required for flowing increases. This causes the pressure on the sand to become less and the bottom water to come up, whrever it is present.

Another method of holding back pressure on the sand when using the gas lift is by restricting the flow from the well by the use of a valve or flow "bean." Adjustable flow "beans" have been found most desirable for this purpose as they are readily changed.

Where it is desired or necessary to impose back pressure on the producing formation, the method of raising the tubing is more economical and should be used, especially where the fluid will rise naturally to a point high enough to affect the desired pressure on the sand and still maintain production. By using this method the working pressure of the extraneous gas is less than that required by well head control and the compression costs are materially reduced.

The left section of Fig. 13 shows the relative positions of oil and water as they exist in the producing formation before a well is produced excessively. The middle section shows the effects of hard swabbing or flowing off bottom with the gas lift. The dissipation of fluid and gas adjacent to the well creates a low pressure region permitting the water to cone up. When the upward travelling water cone cuts across the bottom of the well some water will be produced. As the water cone travels upward more and more water will be produced and the oil formation will become filled with water cutting off the lateral travel of more oil. When the water cone crosses the oil drainage cone inside the well bore, the well will produce nothing but water.

The right section of Fig. 13 shows the effect of applying back pressure by any suitable means. The pressure exerted at the bottom is sufficient to force the water down and hold it back. It, however, is not sufficient to prevent the oil from travelling into the well. Where the formation is tight at the bottom of the well and water is present, the water will enter from the sides. This method of controlling water has been found very successful in the Panhandle field where many of the wells produce water. Several wells on the gas lift under back pressure control are producing pipe line oil while all the surrounding wells in the same formation produce by swabbing and pumping are making water in quantities ranging from one to 95 per cent.

No wells should be produced at a rate that requires a back pressure low enough to permit water encroachment where it is known that a smaller flow under a higher back pressure will produce pipe line oil. A well flowing at a lower rate and free from water will in most cases produce more oil ultimately than one producing at a greater rate which makes water. In addition to the recovery of a greater volume of oil, an additional saving will be made in treating of the oil to separate the water.

When the natural pressure in the formation declines the flow line is lowered to maintain the proper hydostatic balance on the water as described. A careful study of pressures is made at all times by the use of recording pressure gauges which supply the necessary information for determining the proper positions of the flow line.

Gas Factors and Effect Upon the Ultimate Recovery in Gas Lift Wells

Keeping the gas factor as low as possible in wells being flowed by the introduction of extraneous gas recycled in connection with a gasoline plant is of secondary importance where it is desired to obtain the maximum amount of oil by gas lift methods.

As the natural pressure in a well declines a greater volume of extraneous gas can be circulated, causing increased aeration of the mixture in the flow line and a lower working pressure. When this method is used for prolonging the flowing life of a well the tubing will generally be at or near the bottom. The lowering of the pressure causes a greater differential to be created between the flow line and the producing formation. This differential will prolong the time of flow of oil into the well. In no case should the differential be made any greater than is absolutely necessary to maintain reasonable production from the well. Excessive production, natural or otherwise, at any time is liable to damage the well.

The increased gas factor method of prolonging the life of a well will permit more production than could otherwise be obtained. Where the gas is re-cycled through an absorption plant, additional gasoline is also recovered. The only additional cost in the method of using high extraneous gas factors is that of the additional required for compression. This, however, is small compared to the value of the additional oil recovered.

This method is of especial advantage

in producing deep wells where the gas lift is the only economical method which may be used. The curve of Fig. 14 shows the effect increasing the gas factor has upon the working pressure. As the amount of extraneous gas is increased the weight of the flow column becomes less. This continues until the friction due to the increasing volume of gas causes the working pressure to reach a minimum and rise. An observation of the curve will also show that production can be prolonged to the point where increasing the gas factor causes the working pressure to increase.

In experiments conducted with one well, the gas factor was increased by an amount sufficient to cause the working pressure to drop from 105 pounds down to 18 pounds. In so doing, the gas factor was increased from 1800 feet per barrel to 7000 feet per barrel. When the lower pressure was reached the oil was so greatly aerated that it was practically a fog. The high gas factor method of reproduction should never be used where gas is not being re-cycled, as it will be extremely wasteful of gas and gasoline values.

No method of production is economical that permits the escape, to atmosphere, of a single cubic foot of gas more than is absolutely necessary. In most cases where the volume of gas is large enough gasoline plants as part of the re-cycling program show very good returns on the investment required for their installation. The gasoline extracted will pay all operating expenses of the lease and show a further return in addition.

A comparison of wells on the gas lift in the Panhandle field with those producing by the same method in the Seminole field of Oklahoma is interesting. Wells in both districts operate with approximately the same gross gas factors, which are about 1000 cubic feet per barrel. In the Seminole area, the extraneous gas factor is one-third of the gross gas factor, showing two thirds of the output gas to be taken from the formation. In the Panhandle the volume of output gas is four times the output from the formation, or four fifths of the total. From this it can be seen that the re-cycling method used in the Panhandle is dissipating the gas in the formation but one third as rapidly as it is being dissipated in the Seminole area. The ultimate percentage of production in the Panhandle under these conditions should be two or more times that obtained from the Seminole area.

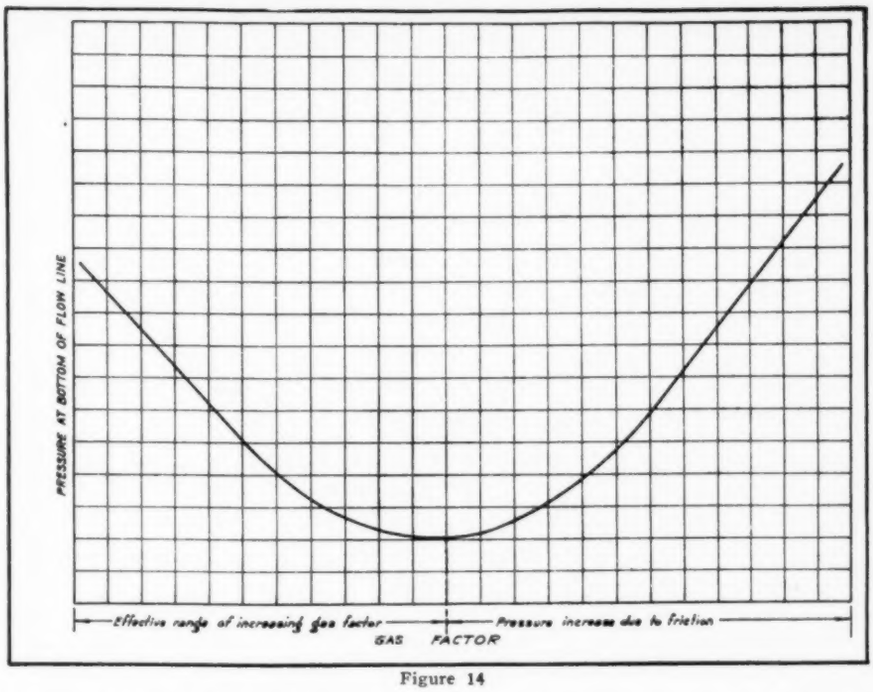


Figure 14

The use of the gas lift in the Seminole to increase the rate of production will result in a large unrecoverable amount of oil left in the formation. Gas lifts under back pressure control in this area would give a greater ultimate yield but would decrease the maximum rate of production which would otherwise exist for a short time.

High peak production from flush pools is wasteful of natural energy, creates a surplus on the market and causes low prices. Greater benefits would accrue to all operators in such pools if scientific and economical means of production were adopted at the start.

The Effect of Gas Lift Upon the Life Of A Producing Area

Figure 15 shows a curve representing a group of 53 wells in the Panhandle Field which were completed at approximately the same time. The ordinates of the curves represent peak productions. The abscissae represent days after the peak production was reached. The wells followed a typical decline curve for lime formation production for fifty days as shown by the curve from A to B. The sudden drop in the curve from B to C is caused by water encroachment in the field due to depleted gas pressure in the formation. At C a few wells were put on the gas lift with the result that the rate of decline was lessened and the curve went from C to D instead of from C to H as it would have done under natural conditions. When the point D was reached a sudden drop in production occurred due to one large well, not on the gas lift, going to water. This very rapid decline continued for two days to the point E, when equipment for putting this well on the gas lift was installed. The gas lift method brought the well back to life as a good and consistent producer, as shown by the rising production from

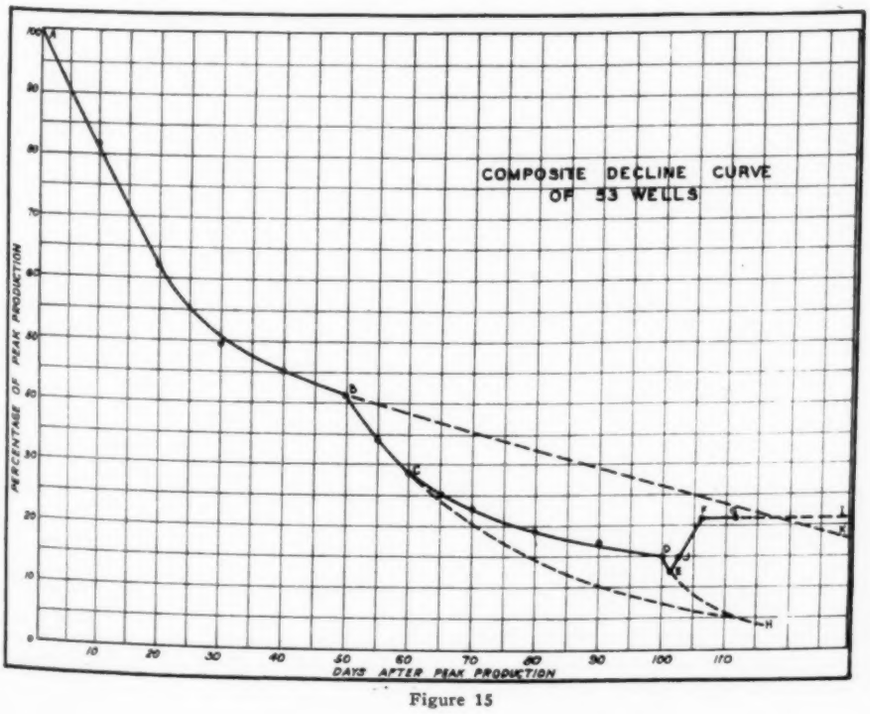

COMPOSITE DECLINE CURVE OF 53 WELLS
PERCENTAGE OF PEAK PRODUCTION
DAYS AFTER PEAK PRODUCTION
10 20 30 40 50 60 70 80 90 100 110

Figure 15

the section of curve between E and J. At J a large plant was put in operation and several more wells were produced by the gas lift method, raising the production to the value shown by the point F. Since reaching the point F the production of this entire curve of wells has been maintained without any decline, as shown by the horizontal part of the curve between F and G.

The production at the present time is about where it would have been if the original normal decline had occurred without water encroachment. This curve is shown by the extension of AB to K. If the second group of wells had not been put on the gas lift at the time the well at D went to water, the production would have declined rapidly from E to H, or lower. The very marked increase in production was accomplished by putting ten wells on the gas lift.

A careful study and analysis of the curves of Figure 15 shows the possibility of using the gas lift as a very satisfactory means of prolonging the productive period where it would otherwise be shortened by the encroachment of bottom water.

Putting Wells on the Gas Lift

A well should be put on the gas lift as soon as it is completed if it will not flow naturally. This will result in the greatest possible conservation of gas in the structure from the start and the well will have a longer productive life.

Where a well is in productive territory, it is economical to have the machinery for gas lift requirements on the ground before it is completed. The writers have found it advantageous to have a fleet of portable compressors available for temporary duty previous to the installation of central plants. The portable compressors will generally show enough earning to pay for their cost in ten days.

General Characteristics of Gas Lift Wells

If insufficient gas is available to flow a well it will head the flow at regular intervals. Too large a flow line will cause the same thing to occur, on account of slippage. This condition may be remedied by providing sufficient gas for flowing or by changing the size of the flow line, or both.

Improper depth of flow line will result in too high or too low pressures on the producing formation. If the pressures are too high the production will be retarded. This may be changed by the lowering of the flow line. If pressures are too low on the formation, production will be too fast and water encroachment may occur. This condition may be remedied by raising the tubing off bottom, to effect the proper back pressure, or by "beaning" at the well head.

If too much gas is used it will slip through the oil doing no work, requiring abnormal gas factors and excessive compression costs. Too much gas also denudes the oil of its lighter fractions and lowers its gravity. The proper volume to use can only be determined by observation and test.

If too small a flow line is used the maximum production of the well cannot be maintained and high working pressures will be required. The production of some wells has been more than doubled by changing the size of flow lines. The proper size cannot be determined except by test and a study of the individual well characteristics.

Wells which produce some water along with the oil must be carefully watched or they may be ruined. This has been the past results in some fields where wells producing water have been put on the gas lift.

Input pressures, as recorded on pressure gauges, are criterions of actual conditions existing in wells. Where automatic controls are installed sharp wavers in the lines indicate too much gas. The abrupt peaks occur when slippage takes place. Wavers which are smooth and rounded over indicate partial heading and insufficient gas. Where the proper amount of gas is being circulated the curve will be smooth and regular. The curves drawn on the recording charts serve as indexes of operating efficiency.

Paraffin accumulations are indicated by a gradual rise in working pressures and a falling off in production.

Natural decline is indicated by a falling off in production and an increase in gross gas factor.

Mudding or clogging of the producing formation is indicated be decceased working pressures, high gas factors and less production. The decline curves under this condition will be more pronounced than the normal declines.

Summary

The gas lift method of flowing wells is not recommended as a cure for all production problems where it is used. It, however, does make possible.

1. The lowering of lifting cost.
2. Increasing the ultimate yield.
3. Decreasing the time of obtaining the ultimate yield.
4. The retardation of bottom water encroachment.
5. The operation of deep wells where the cost of swabbing or pumping is prohibitive.
6. Reduction of rig repair due to swabbing.
7. The reduction of cleanout jobs and loss of producing time.
8. Elimination of pumping repair jobs.
9. Reduction of lease labor.
10. Protection of wells by keeping them on steady production.
11. The recovery of gasoline in excess of the amount recoverable by other means.
12. The conserving of gas in the formation which is the most important factor in ultimate production.

It is very important to have recording gauges on flow lines and well heads and also meters for measuring the input and discharge gas. The knowledge gained by a careful study of charts taken by such instruments gives the necessary information for the proper control of the well and pays big returns on the investment.

Temperature studies of wells on the gas lift are also very important as they are indexes to water encroachments. Charts from recording instruments on gas lift wells mean the same to the production engineer that engine indicator cards do to the mechnaical engineer. They tell him what is going on inside and furnish the necessary information for diagnosing individual cases and applying the necessary remedies. Too much stress cannot be laid upon the importance of their use.

Long Beach Would Ban 40-Barrel Wells

Long Beach, Calif.—The City of Long Beach has under consideration the preparation of an ordinance providing for a fee of $500 as a permit to erect derricks in the Alamitos Heights district, as a result of the Petroleum Securities Company's discovery of oil sand in its Naples well.

In addition to the exorbitant fee for derrick erection under consideration, it is planned to insert in the ordinance that no derrick shall be erected without being put immediately into continuous operation until completion. The proposed ordinance under consideration would stipulate that any well which produces less than an average of 40 barrels of oil per day for 60 consecutive days, or an average of less than 10,000 cubic feet of gas is to be considered as worthless and as a signal for discontinuation of development.

Russians Extend Market Efforts in England

Washington, D. C.—Efforts to extend the market for Russian oil in England are evidenced by the recent arrival at a northern port of two cargoes of oil, totaling about 14,000 tons, consigned to new tanks recently erected by Russian Oil Products, Ltd., reports received this week at the Department of Commerce state.

The arrival of the cargoes, the trade commissioner at London stated, mark the extension of the soviet oil marketing organization to northern England and Scotland. Heretofore the bulk of Russian oil sales have been in the south of Englnad, but it is apparently the intention of the soviet organization to extend its marketing facilities on a considerable scale to other parts of Great Britain.

New Efficiencies Obtained in Recovery Methods

(Continued from page 31)

covery with easier operation of a much better oil.

A paper dealing with Core Studies of the Second Sand of the Venango Group was presented by Charles R. Fettke, Carnegie Institute of Technology, and was discussed by L. S. Panyity, an operator of Bradford who has been giving considerable time to the study of flooding practice in that area.

Flooding Methods

Mr. Panyity stated that they were getting from 2000 to 14,000 barrels per acre more oil from the sands at Bradford as a result of the flooding practice now going on there. In this connection it was pointed out that that property being bought for flooding purposes was bringing prices from one to several thousands dollars per acre.

Mr. Panyity reviewed the flooding methods now being used at Bradford and illustrated the five methods which have so far proven successful. These methods are:

1. On small properties a single well is drilled in the center of the property for the flood inlet.
2. Another system that has shown favorable results is to drill a string of water wells through the center of the property paralleling the oil wells to each side.
3. A string of water wells are drilled on the outside around the entire lease.
4. Alternate water and oil wells drilled around lease.
5. One row of water wells to six rows of oil wells, making about two water wells per acre.

The latter method as pointed out by Mr. Panyity as being the fastest method now being used.

When questioned as to the cost of such work Mr. Panyity said that all new wells had been found preferable in the flooding work, both oil and water wells in as much as the condition of the old wells on the property was such that it might affect the control of the flood practice. He said that the cost to drill and fully equip a water well in the Bradford field was around $2,000 and only a few hundred dollars more for oil wells. Thirteen hundred to 2000 foot holes are being drilled at a price of 80 cents to $1.15 per foot.

In discussing the use of air or gas instead of water, Mr. Panyity said that water could be used on smaller properties, whereas larger areas must be worked when using air or gas. It was also his opinion that the use of air and gas required greater attention and is not as easily controlled as the water flood practice. He said that air and gas might be used after water flooding had been completed.

Mr. Panyity said that he was using just plain surface water in his work at Bradford.

Another Bradford operator in commenting on Mr. Panyity's remarks stated that his company had introduced air ahead of their flood and that the results have been double. His company is introducing air to the sand under about 400 pounds pressure.

Another paper dealing with increased recovery was presented by John L. Rich, geologist of Ottawa, Canada, who outlined a theoretical method he has designed for mining oil sands.

Advances in Casinghead Practice; California Practice in the Transmission of Highly Viscous Oils Through Pipe Lines; Transportation of Crude Oil and a Selected Bibliography on Petroleum Engineering and Transportation Engineering, were other subjects presented at this symposium.

California Wildcat Has Oil Sand Show

Piru, Calif.—George W. Johnson has picked up what is considered an oil sand in his test well on the Wickham Ranch at 2790 feet.

The showing has been classified with a related showing made in a wildcat well formerly drilled by the Marland Oil Company of California in the same district. The Marland well logged the same showing at approximately the same depth, notwithstanding the Marland well is presumably lower down on the structure than its successor. The Marland project was thoroughly tested, but the operators were never able to draw commercial production from the well.

Make Vain Attempts to Extend Athens

Los Angeles, Calif.—Attempts of the Union Oil Company of California to provide a northwest extension to the Athens area of the old Athens-Rosecrans oil field in Los Angeles County so far have been in vain.

Recent reports were to the effect that the Union's Mosier test, northwest of the Athens area, was drilling ahead below 4810 feet without any positive showings. The Mosier well formerly was a Julian Petroleum Corporation wildcat.

Plan Much Drilling at Kevin-Sunburst

Great Falls, Mont.—Operators are beginning to muster their reserve strength for the opening of the spring drilling campaign in the Kevin-Sunburst field. Production has not climbed as it should have since the recent blizzards curtailed operations. The operators are quick to sense the shortage in production and will drill more than 600 wells during the year. Production in the field has settled around 10,000 barrels daily.

Big Play is Starting in Austin County

Houston.—Unit control by the Humble Oil & Refining Company of the new Raccoon Bend area in Austin County will not retard development, it is seen from present active operations under way in the vicinity surrounding the recent gas strike in Humble's Walton No. 1 well approximately eight miles east and slightly north of Bellville. One well is now producing; one drilling and four new locations have been made and are preparing to rig up.

The Walton No. 1, which made around 5,000,000 cubic feet of gas from 1032 feet, the Raccoon Bend discovery well, will furnish gas for fuel for drilling of recently made locations. It was capped shortly after completion, and has later been connected up to run gas to other locations.

Location has been made for the Washington No. 1, 500 feet north of the south line and 500 feet east of the west line of the E. Washington 24-acre tract in the W. C. White survey. It was rigging up early this week. A derrick is up for Austin College No. 2, located 3300 feet south of the No. 1, which was abandoned this week at 1005 feet, and 2640 feet southwest along the line from the north corner of the Austin College 1232 acre tract and 2000 feet at right angles of said line. The Thompson No. 2 is located 388 feet south of the north line and 500 feet east of the west line of the survey on a 333 acre tract. Reese No. 2 is located 500 feet north of the Reese No. 1, abandoned, on a 10-acre tract in the W. C. White survey.

The Bellville School No. 1 of the Humble was preparing to drill into 11 feet of oil sand topped at 904 feet. The Bellville School No. 1 is located approximately 2500 feet east of the west line and 150 feet north of the Bellville School 200-acre tract in the Smithers survey.

Four Companies Active At Stratton Ridge

Houston.—A revival of exploration work at Stratton Ridge dome in Brazoria County is of interest throughout the Texas Gulf Coast inasmuch as four major companies are now active around this dome, which has never been a commercial producer though it has been among the known coastal domes for almost 20 years.

Pure Oil Company has made location for the Armstrong No. 1, which will be drilled on a 50-acre tract held jointly by the Pure and Humphreys Corporation. Location is 260 feet north and 50 feet west of the southeast corner of the B. W. Armstrong tract in the T. W. Grayson survey, on the northeast side of the dome. About 1500 feet southeast of the Pure location Associated has a test ready to start on the Seaburn Heirs tract formerly drilled by the Freeport Sulphur Company. On the south side of the dome the Gulf is drilling a well on the Perry tract, making a deep test after failing to make production in an oil show slightly below 3000 feet.

Technical Status Makes Conservation Unnecessary

(Continued from page 24)

of what production engineers were able to predict and suggest to the Texas Railroad Commission and other companies. The recommendations not followed: water encroachment resulted."

Bennett's Paper a Revelation

At this point Joseph Jensen with the Associated Oil Company at Los Angeles remarked that:

"In California, we don't know how to change the gas ratio. Bennett's paper was a revelation on the experimental work done. (Reference is made to the paper presented at the production engineering symposium by Mr. E. O. Bennett and published elsewhere in this issue.) It is one of the finest papers on this subject that I have heard."

A. C. Rubel with the Union Oil Company of California said that he believed that action of the American Petroleum Institute in officially recognizing the principle of gas conservation is most wise but at the same time he urged in his discussion which also followed the Boyd, Blodgett and Wickersham paper, extreme caution and much deliberation before any attempt is made to legislate in matters concerning gas oil ratios.

In this connection he pointed out the situation in the Dominguez field as follows:

"In the Dominguez field for example where normal average gas oil ratios will run from 1400 to 1800 cubic feet per barrel, a ratio of 12,000 cubic feet per barrel was encountered in a well located near the top of the structure where an upper sand of high gas content was included in the producing interval. By no device of back pressure, change of tubing depths or sizes could the ratio be materially reduced, and the only remedy of the condition would be to exclude this particular sand from the production. The sand contains some oil, and a rich gas which would be lost to the producer by its exclusion, and yet by allowing the sand to produce no harm is being done the deeper sands by reason of gas depletion because there is no communication. Would the sealing off of this sand be a measure of conservation?

"The Marietta process often results in a high gas oil ratio, and yet the gas is returned to the sand. This is certainly conservation.

"It is quite conceivable that in some cases it may be advisable to deliberately stimulate production by forcing the gas oil ratio far above normal, and then to return the resulting gas back into the sand to perform its work again."

Professor L. C. Uren said that he was of opinion that the industry's objective should be something very similar to what has been called the unity plan of operation. It is his belief that the proposed control of gas factors as now considered paramount in any work toward conservation is only a part of what must be done if the industry is to adequately conserve oil reserves.

Professor Uren said in part as follows:

Has Unit Plan

"It would require many hours to adequately discuss the many factors, both technologic and economic, that enter into this situation in which we now find ourselves. I am therefore not going to attempt in a few moments to discuss the matter or argue it one way or the other, but merely announce what we may call a creed which I believe we can defend with our present available information, though it may sound very dogmatic. You probably will not agree with it.

"I believe that under favorable conditions, gas conservation in oil production by any means will result in a greater ultimate oil recovery. However, that we cannot in the present state of our knowledge predict for a given well or given set of conditions just what the proper gas oil ratio or gas factor should be.

"I believe that it would require the continual service of several times as many petroleum engineers as we have available to properly determine the economic gas oil ratio for every oil well in the United States. Please notice that I said the economic gas oil ratio —and I think this is the only one we should consider. By economic gas oil ratio, I mean that ratio which will lead to the maximum ultimate profit to the producer.

"I believe that the proposed control of the gas factor is only a part of what we must do to adequately conserve our oil reserves. We must also determine many other factors. We must know the economic spacing of the wells in every field. We must determine many details which determine the production efficiency. We must so far merge our mutual interests as to virtually unify operations in all individual fields. Frankly, I believe our objective should be something very similar to what has been called the unity plan. I favor, however, accomplishing this largely by voluntary methods with a minimum of legislation. I believe it can be demonstrated to the satisfaction of any reasonable man that we can realize from three to four times as much profit per acre from our oil lands as we secure by present day competitive methods. Further, we can get by what we may call co-operative exploitation more than twice as much oil from every acre of our oil land than by present methods."

Sees Need for Better Knowledge

Professor Uren is one of those who do not believe that the present condition or status of technical knowledge in the industry is what it should be and in this connection he said:

"The situation in which we find now oursevles is both an indictment and a challenge to the petroleum engineering profession, an indictment that we are unable to give the industry at this critical time, a conclusive and certain answer in the present controversy, and it is a challenge that we promptly put our house in order.

"I wish to urge in the strongest terms at my command that the industry and particularly the engineering profession should take such steps as will definitely point the way toward a more constructive plan."

Education Vs. Legislation

Dr. George Otis Smith, Director of the United States Geological Survey, while agreeing with Professor Uren's remarks emphazised that "education comes before legislation". He further pointed out that:

"The past year has seen a marked recognition of the possibilities of engineering as applied to oil production.

"For a time, it seemed to some of us, as if the oil geologist was a little too efficient in finding oil. At the present time I think we can hope that the oil engineer will take his place and become much more efficient in this important matter of raising the maximum amount of oil to the surface, and by the cheapest method."

In conclusion of this discussion, Chairman Fohs, reviewed the situation as follows:

"I have been one of those who have been ranged on the side of conservation in this country; I am still, but I want to say that to attain that to the hundred per cent, just like the hundred per cent ideal in anything, it is just a little bit "other-worldly" rather than this worldly.

"The factor that is before us, the gas oil ratio, is only one of several factors that enter in as Professor Uren has stressed, and one of the things that is equally important, it seems to me, is that if we are going to have a large production in this country, we must also check the operating of a great number of new pools at one time and how this is to be done is something that none of us has any idea of."

Resume of Field Work

Preceding the discussion on the Status of Engineering Development in the Industry, a resume of field results in both domestic and foreign fields was presented which lead to a rather lengthy discussion of the prospects for the Industry during 1927.

A graphic illustration showing what is taking place in the industry from an economical standpoint was presented by Joseph E. Pogue, which concluded the Thursday evening session.

Seminole Over Production Cause Of Serious Concern

Output is far past handling facilities and pipe line companies hesitate on building more lines to care for flush

By ROYE MUNSELL
Staff Representative

Tulsa.—Preliminary steps for proration of oil runs from the Seminole field have been taken by operators. The details of just how it will be attempted have yet to be worked out.

Ray Collins the field umpire has been instructed to make a survey of the pipe line facilities of the field and further action is awaiting his report. Another phase of the outlet predicament of the field developed at a meeting Monday when it became known that a number of the pipe line operating companies were reaching the limit on oil purchases.

Collins' survey will not only include pipe line capacities but also how much oil these companies are able to handle and their probable buying in capacity.

With the output of the field now standing over 320,000 barrels and likely to show an immediate increase, the situation is not without some very serious aspects.

When the field starts to decline a rapid falling off is anticipated. The present situation comes about apparently because of the relutance of crude purchasers to build additional lines into the field to handle this extremely high output which is seemingly only temporary. The operators, on the other hand, seem unwilling to run the excess into their own storage.

Recently completed steel storage is taking care of any surplus oil that was for a time being run into earthen storage in the field. The practice of putting oil into earthen storage was discontinued during the past week, it is reported.

Increase Without Completions

During the latter part of the week the field had reached a production of 305,789 barrels for the 24-hour period ending Saturday morning. The previous days' production totaled 304,437 barrels. This figure was an increase from the 300,400 barrels for the preceding day's production and was reached without a single new completion in the field. Apparently the operators are using every means known to them to produce the greatest amount of oil.

With many new completions expected in the field during the coming week, no let up is anticipated unless the operators take some definite action on a curtailment program. Five new wells are due in very shortly in the Earlsboro field with others following at intervals. The Seminole field proper in 99-6 is not so active and it is not likely that its production will increase very materially over the present figure, if at all. New completions from time to time will no doubt hold production near the present level. From recent developments, the south end of the field is the most promising for worthwhile extensions. To the north the Mid-Continent Petroleum Corporation found water in the Wilcox sand with its Rentie No. 3 in 14-9-6 from 4276 to 4281 feet. The west portion is showing some water and the older wells there are not holding their production in a manner typical of the rest of the field.

An important recent development in the Searight field was a hole full of water by the Carter Oil Company with its Stewart No. 4 in 34-10-6. The Wilcox was had at 4330-33 feet.

Seminole-Searight Areas Separate

The test drilling between Seminole and Searight in 34-10-6 is drilling below 4300 feet in green shale and appears to be a failure. A connection between the two areas is considered unlikely.

The Cromwell sand which has been producing in the Earlsboro field for some time before the Wilcox pay was discovered, looks very favorable on the east side with the new producer of the Magnolia Petroleum Company in the northeast of the northwest of the southwest of 11-9-5 from the Cromwell sand there. The well came in with an initial production of 1177 barrels and is now making 850 barrels daily. This is the fartherest east well. The original east extension well was drilled one location to the west and came in for 900 barrels from the Cromwell pay. The fact that the Cromwell sand was found further productive in this district is of no little importance, and gives the field a total of three producing formations to be exploited. The Cromwell at 3500 to 3800 feet; the Hunton at around 3900 feet; and the Wilcox sand which is found at an average depth of 4150 feet in this area.

Unfavorable weather has further delayed work on W. R. & W. E. Ramsey School land well in 27-5-5, ten miles north of Boise City in Cimarron county, Oklahoma. It was to have been drilled in during the latter part of the week.

The derrick and engine house destroyed by fire have been replaced and further testing will be resumed during the early part of the week.

Preparing For Record Attendance at Tulsa for Geologist Association Meeting

Tulsa. — After the members of the American Association of Petroleum Geologists have finished with their twelfth annual convention here March 24, 25 and 26, they will have a chance to taste a bit of modern ranch life, as well as some choice steer and buffalo meet, over at the 101 ranch near Ponca City. The Miller Brothers of ranch and show fame have invited the membership over for buffalo dinner at the ranch, Sunday following the convention.

Special Pullman will take those of the members desiring to visit the ranch from Tulsa to Ponca City. From Ponca City transportation will be furnished by automobile. The dinner will be but part of the entertainment at the 101 headquarters.

From Ponca City many of the geologists will travel to Ardmore, where a field trip has been arranged by Dr. Charles N. Gould, director of the Oklahoma Geological Survey.

Tulsa geologists are now busy completing plans for entertaining and caring for the convention. Preparations are being made for the largest attendance in the history of the association.

The general outline of the program follows:

Thursday, March 24:

10 A. M. Crystal Ball Room of the Mayo. Convention opens with brief preliminaries. Papers summarizing new developments in all districts.

2:00 P. M. Symposium on relation of structure to accumulation. Nomination of new officers.

8:00 P. M. Entertainment.

Friday, March 25:

9:00 A. M. Symposium on relation

Corrosion Problem Getting Proper Attention

(*Continued from page 30*)

products are quite strongly magnetic, fairly high in electrical resistance, especially if quenched, and possessing a co-efficient of expansion equal to or slightly less than ordinary steel. They may be welded with considerable care, as the welding temperature produces a very great grain growth and the material at the weld has a tendency to air harden and to become very brittle. When ability to harden and to obtain high physical properties are desirable, our choice is practically limited to stainless iron and stainless steel. The unhardenable, non-corrosive steels consist of alloys of nickel, steel and chromium, the latter above 14 per cent.

"As was intimated under the section on hardenable steels, the chromium steels lose this property as the chromium increases, and from about 16 to 30 per cent. chromium with low carbon, we have a series of very resistant alloys, soft and ductile, but weak in shock resistance. They fill a very useful field, when neither great strength nor hardness is necessary and where great resistance to nitric acid and many chemicals is needed. These alloys also may contain small additions of silicon or copper.

Unhardenable Alloys

"The most interesting members of the unhardenable alloys are those containing sufficient of both chromium and nickel to become naturally austenitic. E. C. Bain's excellent paper at this meeting will show just what those bounds of composition are. These steels were studied exhaustively by Dr. Fry and his associates at Krupps. The addition of notable amounts of silicon, usually from 2 to 3 per cent, was found by the investigations of C. M. Johnson, of the Crucible Steel Company to bring about a considerable improvement as regards many conditions of corrosion and resistance to high temperatures and scaling. The good qualities of both the chromium and the nickel alloys are preserved in the austenitic chromium-nickel alloys and the silicon addition still further enhances them, and improves the welding qualities as well as resistance to scaling and some kinds of corrosion. They are so resistant to so many things and conditions that we have given them the name "Rezistal". For the most part they are totally non-magnetic; their electrical resistance is high; to oxygen and hydrogen sulphide at 900 degrees F., for many hours they are perfectly resistant; some of them form no detachable scale in an oxidizing atmosphere above 2000 degrees F. One of the leading chemical firms reports that 25 per cent nitric acid at 125 degrees F., attacks them at a rate which would require 1000 years to consume a one-inch plate, while with sulphuric acid of 80 per cent and upward they might last only one-fourth as long."

Cooperation Required

Dr. Mathews in conclusion said:

"It will take the closest cooperation between industry and the steel makers, if we are to avoid costly experiments and mistakes, due to misapplication and a lack of complete understanding of the problem. Some of us have been studying these fascinating alloys intensively for years and the more one has studied them the more one realizes what still remains to be done.

The corrosion problems of the giant petroleum industry are not incapable of solution, I am sure, but the more you will tell us about your troubles and the more carefully and accurately you present them, the sooner will solutions be forthcoming.

"The Steel industry is one of your good customers and the users of our products are also large users of yours. We have a mutual interest in solving your corrosion problems for the ultimate good of those whom we both serve and the general public, and in carrying forward the national program of conservation of natural resources."

In leading the discussion of this paper, Dr. Osmond noted that the speakers all stress cooperation. Mr. Palmer stated that 14-16 per cent of chromium in steel constituted the transition range. Steels on both sides have no relations to each other. Above 16 per cent they are quite susceptible to grain growth. He stated his conviction that although chrome steels may be very resistant in practice and last practically forever, it was useless to build expensive equipment when petroleum practice is in a state of constant flux and new equipment becomes obsolete in design in a short time. Mr. Malcolm, speaking from the metallurgical viewpoint wondered whether 325 Brinell metal could be machined easily. He stated that stainless iron should be annealed and also that stainless working against stainless, as in valves, was certain to seize. Norwood stated that it is possible to machine 20 per cent chromium steel of 400 Brinell hardness after heat teratment. But the price of chromium steels appears to be the obstacle to their use. Dr. Mathews said that the price cannot be reduced until the volume of business increases. This situation does not indicate any immediate wide-spread use of chomium steels in the petroleum industry.

Pump Corrosion

Hamilton Garnsey, Jr., was not present and his paper "Pump Corrosion" was read by title, as well as the brief discussion by W. J. Laury. The content of their contributions can be gathered from the following quotations:

"For handling gasoline in a refinery, iron centrifugal pumps were supplied. In a short time the impellers were badly corroded. Investigation showed that the gasoline carried a small amount of sulphuric acid and some water. In this case the description of the liquid was incorrect. Anti-acid impellers were supplied and proved satisfactory. An interesting point in this connection is that acid in gasoline, provided no water is present, has no effect on an iron impeller.

"An acid resisting bronze centrifugal pump handling warm sea-water went to pieces. It was replaced by a government bronze pump which has been satisfactory. This was another case of lack of knowledge.

"An acid resisting bronze impeller in an iron casing used for boiler feed was badly chewed up in a short time. This was caused by electrolytic action in the pump, which, of course, greatly accelerated corrosion.

"A small centrifugal pump was returned from a sugar refinery with the iron casing worn clear through. When a sample of the 'sugar' it had been handling was obtained, it was found to contain a considerable quantity of highly abrasive material, which had mechanically cut through the casing. This was a typical case of abrasion."

Underground Pipe Lines

E. P. Bly, Standard Oil Company, California, was not present to read his important paper "Corrosion of Underground Pipe Lines," but it is pertinent to give a brief indication of the material.

"There is a tremendous mileage of underground pipe serving the oil and gas areas of the country—upwards of 10,000 miles, with a capital value of perhaps $1,000,000,000.

"This pipe has now been in the ground long enough so that large annual repair bills are becoming necessary.

"Repair expenses will continue at a high level unless improvement along two distinct lines is stimulated to an even greater extent than now:—

"1. Reasonably cheap corrosion-resistant pipe must be developed.

"2. An increasing amount of thought must be devoted to the task of selecting improving, and applying protective coatings.

"Corrosion-resistant pipe may well be considered one of the major needs of the oil and gas industries. It does not necessarily have to be an all-alloy pipe of the type that now seems to be so out of the question from a price standpoint, but may be ordinary pipe with a resistant outer shell or factory-applied coating. It is highly important that new lines, or replacements in old lines, be some day composed of pipe that will not have to be coated in the

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of structure to accumulation continued. Special separate session for Paleontologic group.

2:00 P. M. Election of officers. Special separate session for geophysical and technological papers.

7:00 P. M. Group dinners.

9:00 P. M. Entertainment and dance at Convention Hall. This will be the event of the meeting.

Saturday, March 26:

9:00 A. M. and 2:00 P. M. General papers.

field in order to withstand the ravages of corrosion.

"Field-applied coatings will have to be depended upon until corrosion-resistant pipe has been in general use for a long time. In connection with the all-important work of selecting trustworthy pipe coatings from a large and growing list of available materials, it is desirable that laboratory tests be devised that will throw some light in advance on the probable field effectiveness of coating materials so that slow and expensive full-scale tests may sooner or later be cut to a minimum."

In discussing Bly's paper, J. H. Piper remarked that it would be necessary to stick to protective coatings in the field. The pipe must be clean and dry with loose scale off before coating is applied. Asphalt is the customary coating material. K. H. Logan stated that it was necessary to keep the moisture away from the pipe. The electrical test is very valuable. Six volts is considered too high. F. M. Towl's discussion was read for him. He found that one volt penetrated the coating and the value of it is therefore of doubtful value.

Soil Corrosion

The first paper read in the afternoon was one by K. H. Logan of the U. S. Bureau of Standards on "Soil-Corrosion Investigation." The results obtained with bituminous coatings he stated as follows:

"The tests of bituminous coatings, like those of galvanized materials, were additions to the original plans and undertaken to get preliminary data on protective coatings. The tests are for several reasons inadequate. The bituminous coatings are all such as might be applied at the rolling mill or shop of a gas or oil company and are not such as could be readily applied in the field.

"The coatings were applied to short sections of carefully prepared and handled pipe, representing conditions much more favorable to the coating than could be duplicated in commercial practice. They were not subjected to abrasion in shipment or to movement in the earth as are pipes in ordinary working conditions. The tests should be regarded, therefore, as of protective coating materials rather than of protective coatings. On account of the expense otherwise involved, only such materials were chosen for test as could be readily obtained on specification, although the possibility of the existence of valuable proprietary materials was recognized. It was thought that the tests of a few of the more available asphalts, tars and pitches suffice to bring out their characteristics and merits and furnish a basis for more detailed studies if that seemed desirable.

Effectiveness of Coatings

"About 120 of the specimens removed had been in the ground approximately four years. These consisted of an asphalt and a coal tar applied directly to the pipe as a dip and as an impregnating material for fabric wrapped spirally around the pipe over a priming coat of the bitumen. About 150 other coatings, in the ground approximately two years, consisted of one asphalt-impregnated fabric, one asphalt mastic, six asphalt and three tar-dip coatings in six locations, and one tar-pitch and one asphalt-dip coating in 45 locations.

"In general the thin dip coatings appear inadequate for protecting pipe against severe soil corrosion. They appear to deteriorate and to permit moisture to reach the pipe. The one thick tar coating under test flowed after burial, leaving parts of the pipe exposed. In one location the corrosion on the pitch-coated pipe was much more severe than on the uncoated pipe. It has been suggested that this excessive corrosion was due to galvanic action between the free carbon in the coal tar and the metal exposed when the coating flowed. Examination of specimens of this coating from other localities indicates that such accelerated corrosion is common but not universal.

"The tars and pitches seem to adhere to the pipes somewhat better than do the asphalts. Many of the asphalt-coated pipes were coated by a thin film of rust. One of the manufacturer's representatives suggests that the slight rusting under some asphaltic coatings was due to the pickling of the pipe to remove mill scale and not to water penetrating the coating. However, few of the pitch-coated pipes prepared in the same way show the rust laid.

"The impregnated fabric coatings, especially the pitch-impregnated fabric, show much better protective qualities. The adherence of the latter is good but the coating is inclined to be brittle and sensitive to temperature changes. Such a coating would require careful handling when transported and laid.

"The examination of additional specimens will throw more light on their value, but the work has now progressed far enough to justify the conclusion that a coating superior to any under test is desirable. The study of the results of the work of the larger public utilities in protecting their lines, the testing of some of the more favorably known proprietary coatings, and, finally, service tests of a few of the bset available protective coatings on short sections of working lines in locations where corrosion is severe and where the coatings could be examined from time to time, would in a few years furnish very valuable information regarding the proper selection and use of protective coatings."

Blown Asphalts

Gardner, in the discussion, considered that blown asphalts are the only ones which will meet the conditions but that highly blown asphalts are dangerous. The steam distilled are more stable. Egloff queried Kirschbaum on water emulsified asphalts as pipe coverings, but the latter was unable to discuss this matter. Later in the session, however, is was brought out by H. F. Perkins that these emulsified asphalts probably contained both water soluble and insoluble chromium salts. Dr. A. E. Wood brought out the point that the character of the soil made much more difference than the character of the metals of the pipe. The influence of the soil conditions is the dominant factor in the corrosion of pipe lines.

The paper by W. R. Finney and H. W. Young on "Scale and Corrosion Problems in Gasoline Plants" was read by title only as the authors were absent. It deals with mainly the use of dichromate solutions as a means of preventing corrosion.

Papers by D. F. Pierce and W. Samans on the "Use of Ammonia as a Means of Arresting Corrosion" were presented by the latter. Their results were summarized as follows:

"The arrangement shown introduces a solution of 17 to 22 per cent NH_3 directly into the crude oil before it enters any exchangers. The amount generally used represents 25 pounds of NH_3 per 1000 barrels (50 gallons each) of crude charged. After passing through the Admiralty metal tubes of a series of heat exchangers, the crude, with accompanying ammonia, passes through a pipe heater. The ammonia and steam pass off with naphtha vapors through a fractionating column, and then through a series of vapor heat exchangers and condensers using Admiralty metal tubes. The water is finally separated from the condensed naphtha in a water separator.

Ammonia Beneficial

"Without going into extensive detail, it can be stated that the method of adding ammonia here described has not only worked satisfactorily from a mechanical point of view, but it has practically eliminated corrosion of vapor lines and of condensers. Contrary to what might be expected, the ammonia has had practically no effect on the Admiralty metal tubes, no copper being detected in the condensed water. In fact, except for the formation of ammonium chloride crystals in the top section of the vapor exchanger, no difficulty of any sort has been experienced. These crystals are easily washed out with water during any shut-down period."

W. Samans' paper is summarized as follows:

1. "With no ammonia, the water from the separator is practically clear, except for small sulphur crystals. It has an acid reaction and carries Fe and Cu in solution.

2. "With the addition of a certain amount of ammonia, the sulphur comes down in a colloidal form, giving a

milky appearance to the water, which is still acid to methyl orange, and contains Fe and Cu.

3. "When sufficient ammonia has been added to make the water neutral to methyl orange, the solution is intensely black with FeS.

4. "As more ammonia is added the water becomes lighter in color until at an alkalinity equivalent to 30 cc. of N/10 H_2SO_4 per 100 cc. of water (=0.51 gm. NH_3/liter) the black color has almost disappeared.

5. "As still more ammonia is added, to the equivalent of 40 cc. N/10 H_2SO_4 per 100 cc. of sample, the water becomes clear and shows no Fe or Cu in solution. This shows that corrosion from this source has been stopped. This is equivalent to 0.68 gm. NH_3 per liter or 0.28 pound per 50 gallon barrel. Twenty-five pounds of NH_3 is charged per 1000 barrels of crude. This then is equal to 0.715 pound of NH_3 per barrel of water charged. Thus approximately one-third of the NH_3 goes through the system unchanged.

6. "No quantitative data is available on the life of the spools in the condenser since the material of these was changed at the same time the ammonia was added.

7. "No quantitative data is available on the corrosion of the valves in the crude line, but the trouble is considerably less.

8. "The corrosion of the exchangers on the stream side does not seem to be affected.

9. "The ammonium chloride is deposited in the top section of the vapor exchanger and in collecting here tends to block the vapor passage. This puts a back pressure on the top of the column. It can be removed during a shutdown, by washing out with hot water."

Pressure Stills

G. Egloff presented a paper by J. C. Morrell and himself on "Corrosion of Pressure Still Equipment." The economic importance of the solution of the corrosion problem is very great; over 200 million dollars being wasted annually in the oil industry from this cause. The principal source of corrosion is hydrogen sulphide. The extent of corrosion is not a function of the sulphur content of the oil, but is dependent upon the form of the sulphur in the oil. Elementary sulphur has some effect. Chrome iron parts cut down corrosion to a great extent. Other methods may be described as follows:

"The use of special alloys such as chrome-iron, chrome-nickel-iron and like corrosion-resisting alloys have given good results in actual use.

"Electro-plating with corrosion-resisting materials such as chromium has proven satisfactory.

"The use of spray-gun plating calls for further investigation.

"The results of calorizing have so far been variable.

"Metallic liners of corrosion-resisting metals and other metals which can be easily replaced have been used with good results.

"The use of chemical reagents such as the alkalies has been described and corrosion considerably reduced thereby.

"Desulphurization of cracking stocks has so far been found to be uneconomical."

In the discussion, U. R. Evans stated that chrome iron is too expensive. He questions the use of chromium plating. Insists on cheap material.

H. F. Perkins of the Gulf Refining Company read a paper on "Corrosion in an Oil Refinery." His conclusions were summarized as follows:

"Corrosion is an economic problem, its reduction must show good returns on the investment.

"Sulphur is the chief refinery corrosive element; water, atmosphere, hydrochloric acid and caustic are the other important factors. Sulphur compounds form sulphur gases on heating, which combining with water give sulphur acid.

"Hydrochloric acid gas coming from decomposition of magnesium chloride salt in crude, gives hydrochloric acid when combined with water. These acids may be neutralized by ammonia or caustic soda with economy, when in small amounts. In large amounts it may be advisable to use acid-proof jet condensers or special costly metals.

"Atmosphere is made excessively corrosive by combustion products, including sulphur, and by humidity. Protective coatings of metal, metallic paint or specially prepared wax tailings and chromiums are advantageous.

"Water contains organic matter, salt, atmospheric gases, weak sulphur acids, hydrochloric acids and caustic, and is high in temperature half the year. Special metals, protective coatings and neutralization by caustic may be employed.

"Caustic in fuel oil causes rapid deterioration of furnace brick work. Fire cements containing chromium are under investigation as a protection.

"Sulphur compounds in light oils will corrode metals under certain conditions. Aluminum and tin are being tried as a protection.

"Uncoated cast-iron one-half-inch thick, when kept wet will corrode through in about 12 years, so that it will not hold water at 80 pounds pressure, though there is no change in thickness. There is the same effect on oil condenser cast iron coils, which have a life of about two years where steam and acid gases are condensed.

"Accuracy is not possible, and the problem is complicated because of changing operation, variation in crude oils and the wide variation in the composition of corrosive agents. Laboratory tests and standard methods of reporting are of great value."

In the discussion it was brought out that cast iron pipe is somewhat better than steel at low pressure because carbon and silica retain form of pipe. It was also stated that chrome iron pipes and sheets are as easily available as mild steel. Potassium chromate mixed with petrolatum is used as a protective coating. Chrome iron welding is accomplished easily by means of the electric arc and wire of the same analysis.

The paper by R. van A. Mills on "Oil Well Corrosion" was read only by title and the meeting adjourned.

Gas Well Revives Cook County Interest

Wichita Falls, Texas.—The completion of a commercial gas well on a wildcat drilling block in Central Cooke County last week by Magnolia Petroleum Company's Alice Johnson 1 at 1179-98 feet has led to a revival of interest in this section of the North Texas district. The Magnolia discovery well gauged 4,120,000 cubic feet of dry gas, and has been ordered capped for fuel in drilling other tests on the block, and also to sell fuel to neighboring wildcat operations. This is the first gas well for the county, and is located in the Jonathan Clark survey near the south central part of Magnolia's holdings.

The gas strike made by Magnolia in Cooke County is generally believed to be on the high point of a large structure, and checks favorably with conditions found in the Nocona shallow oil and gas field to the west in Montague County. West and southwest offsets to the discovery well of the Muenster Townsite pool in Cooke County were put on production during the past week, thereby giving the pool three producers. The Camp-Hedrick Drilling Company and Oil Operators Trust's M. J. Kleiss 1, located in the northeast corner of a 28-acre lease and a southwest offset to the discovery well, made 145 barrels high gravity oil initial when put on pump February 13, and is holding at 90 barrels daily. This well logged broken sand and shale at 1288-99 feet; oil sand at 1299-1309 feet, and broken oil sand at 1309-17 feet. Strouble & Strouble, veteran operators in the Mexia-Corsicana Woodbine fields, are connecting their west offset to the discovery well to pump, with a good producer almost assured. The Oil Operators Trust's Luke discovery well is pumping 50 barrels daily.

Canadian Gasoline Well Produces Heavily

Calgary, Alta.—With cold weather holding steadily during January, the Imperial Oil Company's No. 4 gasoline well in the Turner Valley district produced more than 20,000 barrels of high grade gasoline during the month. The well is producing more than 15,000,000 cubic feet of gas daily. The gas is very wet and is trapped by means of separators. The gasoline is used throughout Canada for blending purposes.

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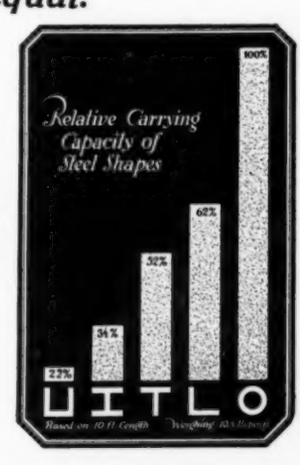

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Say you saw it in The OIL WEEKLY

CRUDE OIL PRICE QUOTATIONS

Crude Price Changes

Tulsa, Oklahoma, Feb. 22.—Effective at the opening of the market today the Carter Oil Company cut Oklahoma and Kansas crude from 15 to 39 cents. Starting at 28 to 28.9, the price is $1.35, with a 4-cent differential for each successive degree up to 52 and above, making the top price $2.31 per barrel.

The cut was met by other major purchasers.

Dallas, Texas., Feb. 22.—Effective at the opening of the market today, Humble Oil & Refining Company cut North and Central Texas crude from 15 to 39 cents, starting with a 15-cent cut on 28 to 28.9 with a 4-cent differential on each successive degree through 52 and above, making the top price $2.31 per barrel.

Humble also announced the same posting for Wheeler and Gray Counties, starting at $1.00 for 28 to 28.9, with a 4-cent differential on each successive degree through 44 and above, making $1.64 per barrel as the top price.

Humble also cut Crane-Upton-Crockett Counties, posting a price of 84 cents on 26 to 26.9, with a 4-cent differential on each successive degree through 36 and above, making the top price $1.24 per barrel.

February 22.—Effective at the opening of the market today, the same price change that was posted on Oklahoma, Kansas and North Texas was extended to Arkansas and North Louisiana, where the same gravity schedule applies.

February 19—Effective at the opening of the market today, Joseph Seep Purchasing Agency posted a reduction of 20 cents per barrel on the following grades of Eastern States crude: Keister, Cabell and Somerset.

February 19—Effective at the opening of the market today, Stoll Oil Refining Company reduced the price of Kentucky crude 20 cents per barrel, making the price $2.00.

February 23—Effective at the opening of the market today, the Ohio Oil Company reduced the following crudes 20 cents per barrel: Lima, Indiana, Illinois, Princeton, Plymouth, Wooster, and Western Kentucky.

At the same time a 25-cent reduction was posted on Elk Basin, Grass Creek Light, Lance Creek, Wyoming, and Artesia, New Mexico crudes; a 23-cent cut on Big Muddy and Rock Creek, Wyoming, and a 15-cent cut on Mule Creek and Rex Lake, Wyoming.

February 23.—Effective at the opening of the market today, the Imperial Oil Company, Ltd., cut the price of Canadian crude 20 cents per barrel.

Illinois Pipe Line Company met Ohio Oil Company's cut on Artesia, New Mexico, crude.

Kay County Gas Company posted a flat price of $1.43 per barrel on Howard County, Texas crude.

Current Postings

EASTERN STATES

	Feb. 23 1927
New York Transit	$3.30
Bradford District	3.40
National Transit	3.30
Southwest	3.30
Eureka	3.25
Buckeye	3.10
Macksburg	3.05
Gaines	2.85
Somerset	2.00
Cabell	1.90
Ragland	.95
Corning	2.25
Keister	1.60

CENTRAL STATES

Illinois	1.90
Indiana	1.78
Lima	2.01
Plymouth	1.43
Princeton	1.90
Waterloo	1.35
Wooster	2.05

WESTERN KENTUCKY

Posted by Stoll Refining Company for crude from Allen, Warren, Franklin, Davies, Barren, Cumberland and Monroe Counties.

All grades	2.00

MIDCONTINENT

Prairie, Sinclair, Gulf, Texas and Magnolia

Below 28 (Magnolia only)	1.30
28 to 28.9 gravity	1.35
29 to 29.9 gravity	1.39
30 to 30.9 gravity	1.43
31 to 31.9 gravity	1.47
32 to 32.9 gravity	1.51
33 to 33.9 gravity	1.55
34 to 34.9 gravity	1.59
35 to 35.9 gravity	1.63
36 to 36.9 gravity	1.67
37 to 37.9 gravity	1.71
38 to 38.9 gravity	1.75
39 to 39.9 gravity	1.79
40 to 40.9 gravity	1.83
41 to 41.9 gravity	1.87
42 to 42.9 gravity	1.91
43 to 43.9 gravity	1.95
44 to 44.9 gravity	1.99
45 to 45.9 gravity	2.03
46 to 46.9 gravity	2.07
47 to 47.9 gravity	2.11
48 to 48.9 gravity	2.15
49 to 49.9 gravity	2.19
50 to 50.9 gravity	2.23
51 to 51.9 gravity	2.27
52 and above	2.31

NORTH AND CENTRAL TEXAS

Ranger, North Texas, Mexia, Powell, Richland Wortham, Lytton Springs, Currie, Moran, Somerset, Big Lake and Nocona Crude

	Feb. 23 1927
Humble O. & R. Co.* and Texas Co.	
Below 28**	1.40
28 to 28.9 gravity	1.35
29 to 29.9 gravity	1.39
30 to 30.9 gravity	1.43
31 to 31.9 gravity	1.47
32 to 32.9 gravity	1.51
33 to 33.9 gravity	1.55
34 to 34.9 gravity	1.59
35 to 35.9 gravity	1.63
36 to 36.9 gravity	1.67
37 to 37.9 gravity	1.71
38 to 38.9 gravity	1.75
39 to 39.9 gravity	1.79
40 to 40.9 gravity	1.83
41 to 41.9 gravity	1.87
42 to 42.9 gravity	1.91
43 to 43.9 gravity	1.95
44 to 44.9 gravity	1.99
45 to 45.9 gravity	2.03
46 to 46.9 gravity	2.07
47 to 47.9 gravity	2.11
48 to 48.9 gravity	2.15
49 to 49.9 gravity	2.19
50 to 50.9 gravity	2.23
51 to 51.9 gravity	2.27
52 and above	2.31

Corsicana Heavy, $1.25 per barrel, posted by Magnolia.

*Until further notice, Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton

(Continued on page 50)

California Crude Oil Prices at the Well

Following are the current prices offered by Standard Oil Company for crude oil at the well: (Price per barrel of 42 gallons in fields indicated)

Gravity (degrees)	Signal Hill	Huntington Beach	Inglewood	Olinda-Brea Canon	Rosecrans Dominguez	Torrance	Richfield	Whittier	La Habra	Montebello	Coyote Hill	Santa Fe Springs	Newhall	Midway-Sunset Elk Hills	McKittrick	Lost Hills	Coalinga	Kern River	Wheeler Ridge
14-14.9	$ .85	$ .85	$ .85	$ .85	$ ..	$ .85	$ .85	$ .85	$ .85	$ .85	$ .85	$ ..	$ .75	$ .75	$ .75	$ .75	$ .75	$ .75	$ .75
15-15.9	.87	.87	.87	.87	..	.87	.87	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75	.75
16-16.9	.90	.90	.90	.90	..	.90	.90	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75	.75
17-17.9	.94	.94	.94	.94	..	.94	.94	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75	.75
18-18.9	.98	.98	.98	.98	..	.98	.98	.86	.86	.86	.86	..	.75	.75	.75	.75	.75	.75	.75
19-19.9	1.04	1.04	1.04	1.04	..	1.04	1.04	.87	.87	.87	.87	..	.75	.75	.75	.75	.75	.75	.75
20-20.9	1.10	1.10	1.10	1.10	..	1.10	1.10	.89	.89	.89	.90	..	..	.82	..	.82	.79	..	.78
21-21.9	1.16	1.16	1.16	1.16	..	1.16	1.16	.91	.91	.91	.98	..	..	.90	..	.90	.86	..	.81
22-22.9	1.22	1.22	1.22	1.22	..	1.22	1.22	.94	.94	.94	1.06	..	..	1.00	..	1.00	.93	..	.85
23-23.9	1.28	1.28	1.28	1.28	..	1.28	1.28	..	..	.97	1.14	..	..	1.11	..	1.11	1.00	..	.89
24-24.9	1.34	1.34	1.34	1.34	1.34	1.34	1.34	..	..	1.01	1.22	1.02	..	1.22	..	1.22	1.07	..	.93
25-25.9	1.40	1.40	1.40	1.40	1.40	1.40	1.40	..	..	1.05	1.30	1.08	..	1.33	..	1.33	1.14	..	.97
26-26.9	1.46	1.46	1.46	1.46	1.46	1.46	1.46	..	..	1.09	1.38	1.16	..	1.44	..	1.44	1.21	..	1.01
27-27.9	1.52	1.52	1.52	1.52	1.52	1.52	1.52	..	..	1.13	1.46	1.24	..	1.55	..	1.55	1.28	..	1.05
28-28.9	1.58	1.58	1.58	1.58	1.58	1.58	1.58	..	..	1.17	1.54	1.32	..	1.66	..	1.66	1.35	..	..
29-29.9	1.64	1.64	..	1.64	1.64	..	1.64	..	..	1.21	1.62	1.40	..	1.77	..	1.77	1.42	..	..
30-30.9	1.70	1.70	..	1.70	1.70	..	1.70	..	..	1.25	1.70	1.48	..	1.88	..	1.88	1.49	..	..
31-31.9	1.76	1.76	..	..	1.76	..	..	..	..	..	..	1.60	..	1.99	..	1.99	1.56	..	..
32-32.9	1.84	1.84	..	..	1.84	..	..	..	..	..	..	1.72	..	2.10	..	2.10	1.63	..	..
33-33.9	..	..	..	..	1.92	..	..	..	..	..	..	1.84	..	2.21	..	2.21	1.70	..	..
34-34.9	..	..	..	..	2.00	..	..	..	..	..	..	1.96	..	..	..	2.32	1.77	..	..
35-35.9	..	..	..	..	2.08	..	..	..	..	..	..	2.08	..	..	..	..	1.84	..	..
36-36.9	..	..	..	..	2.16	..	..	..	..	..	..	2.16	..	..	..	..	..	..	..
37-37.9	..	..	..	..	2.24	..	..	..	..	..	..	2.24	..	..	..	..	..	..	..
38-38.9	..	..	..	..	2.34	..	..	..	..	..	..	2.31	..	..	..	..	..	..	..
39-39.9	..	..	..	..	2.44	..	..	..	..	..	..	2.44	..	..	..	..	..	..	..
40-40.9	..	..	..	..	2.54	..	..	..	..	..	..	..	..	..	..	..	..	..	..
41-41.9	..	..	..	..	2.64	..	..	..	..	..	..	..	..	..	..	..	..	..	..
42-42.9	..	..	..	..	2.74	..	..	..	..	..	..	..	..	..	..	..	..	..	..

WAR on WASTE!

THE SINCLAIR LAW OF LUBRICATION

for every machine
of every degree of
wear
there is a scientific
Sinclair Oil
to suit its speed
and seal its power

SINCLAIR OILS
REG U.S. PAT. OFF.

A POWERFUL weapon in Sinclair's "War on Waste" is the Sinclair Law of Lubrication. This law tells the motorist that his engine has a "*degree of wear*" which requires just the right grade of oil "to suit its speed and seal its power". And he should change the lubricating oil in his car to fit its changing "degree of wear".

In following this Law of Lubrication, Sinclair dealers are rendering a real service to motorists. There is a science behind it—there's a real service behind it. There is a "War on Waste" behind it—a war on inefficient and destructive operation of machinery. Sinclair Opaline Motor Oil increases the efficiency and prolongs the life of the engine! It helps the motorist maintain economical transportation.

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SINCLAIR REFINING CO.
45 Nassau Street, New York

Atlanta Detroit Kansas City
Chicago Houston Omaha

SINCLAIR OPALINE
REG U.S. PAT. OFF.
MOTOR OIL

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Springs, Currie, Moran and Nocona crudes purchased by the Humble Oil & Refining Company, of a gravity lower than 28 degrees will be paid for with a corresponding decrease of five (5) cents per barrel for each lower degree of gravity.

**Humble does not post on below 28.

SOUTH TEXAS

	Feb. 23 1927
Mirando	1.25

SOMERSET
Grayburg and Pioneer

28 to 28.9 gravity	1.25
29 to 29.9 gravity	1.30
30 to 30.9 gravity	1.36
31 to 31.9 gravity	1.54
32 to 32.9 gravity	1.62
33 to 33.9 gravity	1.70
34 to 34.9 gravity	1.78
35 to 35.9 gravity	1.86
36 to 36.9 gravity	1.94
37 to 37.9 gravity	2.02
38 and up	2.10

GULF COAST

Grade "A" all companies	1.40
Grade "B"	1.40
Gulf Coast Light Oil, Below 25	1.40
25 to 25.9 gravity	1.45
26 to 26.9 gravity	1.50
27 to 27.9 gravity	1.55
28 to 28.9 gravity	1.60
29 to 29.9 gravity	1.65
30 to 30.9 gravity	1.70
31 to 31.9 gravity	1.75
32 to 32.9 gravity	1.80
33 to 33.9 gravity	1.85
34 to 34.9 gravity	1.90
35 to 35.9 gravity	1.95
36 to 36.9 gravity	2.00
37 to 37.9 gravity	2.05
38 to 38.9 gravity	2.10
39 to 39.9 gravity	2.15
40 and above	2.20

*Humble Oil & Refining Company's postings on Gulf Coast Light stop at 35 to 35.9. Its price on all crude above 35 is $1.95 per barrel.

Magnolia Petroleum Company's postings stop at 31 to 31.9.

MARKHAM
The Texas Company

All grades	1.15

LULING

Based on contract	1.30

TEXAS PANHANDLE
Magnolia Petroleum Company

Hutchinson, Carson and Gray counties, all grades	1.25

Humble Oil & Refining Company

Hutchinson and Carson Counties, all grades	1.25

Gray and Wheeler Counties.

28 to 28.9 gravity	1.00
29 to 29.9 gravity	1.04
30 to 30.9 gravity	1.08
31 to 31.9 gravity	1.12
32 to 32.9 gravity	1.16
33 to 33.9 gravity	1.20
34 to 34.9 gravity	1.24
35 to 35.9 gravity	1.29
36 to 36.9 gravity	1.33
37 to 37.9 gravity	1.37
38 to 38.9 gravity	1.41
39 to 39.9 gravity	1.45
40 to 40.9 gravity	1.49
41 to 41.9 gravity	1.53
42 to 42.9 gravity	1.57
43 to 43.9 gravity	1.61
44 and above	1.64

Crane-Upton-Crockett Counties

Below 26 gravity	.80
26 to 26.9 gravity	.84
27 to 27.9 gravity	.88
28 to 28.9 gravity	.92
29 to 29.9 gravity	.96
30 to 30.9 gravity	1.00
31 to 31.9 gravity	1.04
32 to 32.9 gravity	1.08
33 to 33.9 gravity	1.12
34 to 34.9 gravity	1.16
35 to 35.9 gravity	1.20
36 and above	1.24

Crane-Upton Counties
Kay County Gas Company

Below 26 gravity	.80

	Feb. 23 1927
26 to 26.9 gravity	.85
27 to 27.9 gravity	.90
28 to 28.9 gravity	.95
29 to 29.9 gravity	1.00
30 to 30.9 gravity	1.05
31 to 31.9 gravity	1.10
32 to 32.9 gravity	1.15
33 to 33.9 gravity	1.20
34 to 34.9 gravity	1.25
35 to 35.9 gravity	1.30
36 and above	1.35

Kay County Gas Company and Gulf Pipe Line Company

Hutchinson and Carson Counties, all grades	1.25
Howard County (Chalk Field)	1.43

WYOMING-MONTANA
Wyoming

Byron	2.00
Ferris	1.80
Elk Basin	1.75
Grass Creek	1.75
Rock Creek	1.62
Lost Soldier	1.35
Lance Creek	1.75
Mule Creek	1.30
Notches	.65
Big Muddy	1.62
Osage	2.00
Hamilton Dome	.85
Pilot Butte	1.75
Torchlight-Greybull	2.00
Lander	1.00

Salt Creek
Midwest Refining Company

29 to 29.9 gravity	1.55
30 to 30.9 gravity	1.60
31 to 31.9 gravity	1.65
32 to 32.9 gravity	1.70
33 to 33.9 gravity	1.75
34 to 34.9 gravity	1.80
35 to 35.9 gravity	1.85
36 to 36.9 gravity	1.90
37 to 37.9 gravity	1.95

MONTANA

Sunburst	1.35
Cat Creek	2.40

NEW MEXICO

Artesia	1.40
Hogback	2.45

CANADIAN CRUDE

Oil Springs	2.48
Petrolia	2.41

*Bounty on Canadian crude is ¾ cent per gallon, or 26¼ cents per barrel.

LOUISIANA-ARKANSAS
(Louisiana Oil Refining Company, Gulf Refining Company of Louisiana and The Texas Co.) Homer, Haynesville, Caddo, El Dorado, De Soto and Chrichton.

	Feb. 23 1927
Below 28 gravity	1.40
28 to 28.9 gravity	1.35
29 to 29.9 gravity	1.37
30 to 30.9 gravity	1.43
31 to 31.9 gravity	1.47
32 to 32.9 gravity	1.51
33 to 33.9 gravity	1.55
34 to 34.9 gravity	1.59
35 to 35.9 gravity	1.63
36 to 36.9 gravity	1.67
37 to 37.9 gravity	1.71
38 to 38.9 gravity	1.75
39 to 39.9 gravity	1.79
40 to 40.9 gravity	1.83
41 to 41.9 gravity	1.87
42 to 42.9 gravity	1.91
43 to 43.9 gravity	1.95
44 to 44.9 gravity	1.99
45 to 45.9 gravity	2.03
46 to 46.9 gravity	2.07
47 to 47.9 gravity	2.11
48 to 48.9 gravity	2.15
49 to 49.9 gravity	2.19
50 to 50.9 gravity	2.23
51 to 51.9 gravity	2.27
52 and above	2.31

Atlantic Oil Producing Company posts this same schedule on Homer, Haynesville, and West El Dorado.

Magnolia Petroleum Company has the same posting on Pine Island, Haynesville and Bull Bayou.

STEPHENS
Louisiana Oil Refining Company, Gulf Refining Company of Louisiana

Below 28	1.30
28 to 28.9 gravity	1.40
29 to 29.9 gravity	1.45
30 and above	1.50

Atlantic Oil Producing Company

Below 28	1.30
28 to 28.9 gravity	1.40
29 to 29.9 gravity	1.45
30 to 30.9 gravity	1.50
31 to 31.9 gravity	1.55
32 and above	1.60

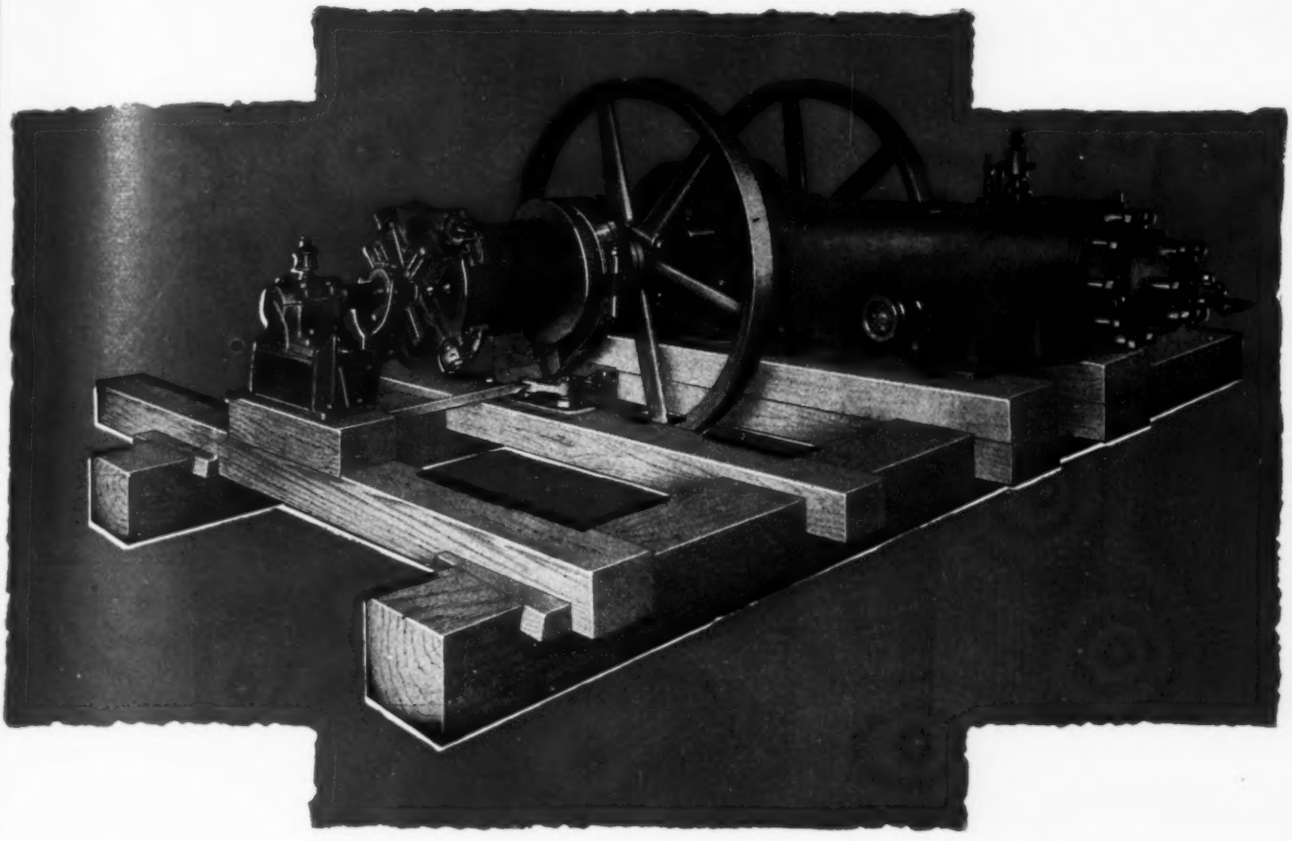
SMACKOVER
(All Companies)

27 and above	1.50
26 to 26.9 gravity	1.45
25 to 25.9 gravity	1.40
24 to 24.9 gravity	1.35
Below 24 gravity	1.10

Bellevue	1.40
Jennings	1.15
Vinton	1.50
Edgerly	1.50
Urania	1.10
Cotton Valley	1.20
Calion	1.10

IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS
(American Petroleum Institute Figures. Barrels of 42 gallons)

	Week Ended Feb 12	Week Ended Feb. 5
AT ATLANTIC COAST PORTS—		
Baltimore	146,000	.....
Boston	60,000	130,000
New York	852,000	311,000
Philadelphia	78,000	76,000
Others	201,000	126,000
Total	1,337,000	643,000
Daily average	191,000	91,857
AT GULF COAST PORTS—		
Galveston District	.....	80,000
New Orleans and Baton Rouge	434,000	440,000
Port Arthur and Sabine District	.....	.....
Tampa	42,000	.....
Total	476,000	520,000
Daily average	68,000	74,286
AT ALL U. S. PORTS—		
Total	1,813,000	1,163,000
Daily average	259,000	166,143
Daily average four weeks ended	191,071	167,063



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Over eight hundred Franklin Valveless Oil and Gas Drilling Engines now in service in both foreign and domestic fields.

The Wonder Engine for Drilling

FRANKLIN VALVELESS ENGINE COMPANY

FRANKLIN, PENNA.

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Casper, Wyoming

FRANKLIN VALVELESS ENGINES

THEY BEAT STEAM AT EVERY TURN

Say you saw it in The OIL WEEKLY

An Industrial Achievement

An Editorial By KENT RIDLEY

AS an industrial achievement, completion of the line of the Houston Pipe Line Company from the Southwest Texas fields to Houston is one of the outstanding developments of recent years.

Not only has the building of the line made available utilization of a natural resource which isolation rendered valueless, but piping natural gas to the last of the important centers of the Southwest without this commodity has been a distinct advantage to the industrial advancement of a city which needs cheap dependable fuel for its manufacturing plants.

Another important angle is the standpoint of oil conservation brought about by the construction of the line. In its immediate effect it has been more far-reaching than the labors of the President's Oil Conservation Board, as it has released quantities of fuel oil which heretofore has been burned under the boilers of the refineries and other industrial plants in the district served.

As a conservation measure effecting the oil supply, this line probably out-ranks any other similar installation. This for the reason that primary energy used in the refineries, manufacturing plants and sulphur mines in the Houston district is probably larger than any other district of equal area located at such distance from abundant coal measures or hydro-electric power.

Each of the several large users of fuel who are now being served with natural gas by the Houston Pipe Line Company formerly fired exclusively with fuel oil.

NATURAL gas is available fuel wherever used, and is so recognized by the authorities of every State in which it is found. But particularly is it of great economic value in the South Texas district, where the principal boiler fuel is oil. The saving of this oil for other uses makes the construction of this gas line of world-wide value, even greater than the immediate saving in operating costs accruing to the plants which have been supplied this fuel.

Construction of a high-powered natural gas line almost across the great State of Texas is in itself great industrial progress, and it is the result of industrial progress in the oil industry that it becomes of greater world value. A few years ago the advent of natural gas at the gates of the refineries in the Houston district would have been of small interest compared to its importance today. Then fuel oil had but one value—that which gives it its name, and even some of the major plants other than refineries which are now ready customers for the gas supply, would have hesitated to change over from the oil fuel which has established itself firmly in heat value and dependability.

But advancement in the technology of oil refining has given fuel oil a greater value as gasoline stock than as boiler fuel, and release of such large quantity as that effected by the gas from Southwest Texas not only immediately lowers the fuel costs of the plants to which it becomes available, but adds profits for the industry through making more oil available for cracking stills. It also releases much fuel for use in plants and places not convenient to gas supplies.

ANOTHER contribution to the general welfare is the development of a valuable resource of a remote section of the State. Development of the gas reserves in the several Southwest Texas counties has added to the value of those lands and further enriched the owners of the land. It makes available funds for further improvement of the section and adding to the comforts and prosperity of the communities from which the gas is drawn. And thousands of others along the line have had their comforts increased by the conveniences gas for domestic use provides.

The public generally is disposed to minimize the real worth of contributions of this kind to its general advancement and comfort. Development of resources is always discounted by the people by the prospective profits which will accrue to the owners of the project, and overlook the public service which is rendered. It is accepted as a matter of course. Pioneers in other lines are often feted and honored, and the builders of great public works are long remembered for their accomplishments. But the real developers of latent resources often are overlooked.

THE line from Southwest Texas was laid by a big corporation and to serve, in most part, other big corporations. But behind it all was a spirit of public service which should not go unrecognized. This ideal of service, selfish in part, of course, but still an ideal, is revealed in the way the job was done, as detailed in the accounts of the construction which accompany this article. Details are given of the care taken in construction to insure dependable uninterrupted service—the goal of all great public service enterprises. And into this work went more than the dollars so glibly spoken of, the steel and the labor—with all these went the spirits of men determined to accomplish a big thing in a big and lasting way. And in this latter, it appears, they have succeeded.

Enough obstacles were met and overcome to make the work interesting. The race against time heightened that interest, but through it all went the greater interest of the men directing the work in making it a job worthy of their best skill.

OFFICIALS OF THE HOUSTON PIPE LINE COMPANY

A. S. HENLEY
Chief Geologist

FRANK W. KIRK
General Superintendent

E. H. BUCKNER
President

F. Y. HUTCHESON
Chief Engineer

C. B. McKINNEY
General Manager

Above— Westcott Valves, Matilda Station, Houston Pipe Line.

At Left—Smaller Westcott valves at a gauge station.

CONTIN

Westcott Valves used throughout
ON HOUSTON PIPE LINE

The leadership of WESTCOTT Valves, for pipe line service, has again been emphasized—by the selection of WESTCOTTS for the Houston Oil Company's new trunk pipe line, extending from Laredo, Texas, gas area to Houston, Texas.

WESTCOTT leadership in this field is not accidental, but is the result of Westcott's policy of building valves designed to exactly meet the requirements of every oil and gas field service.

WESTCOTT Pipe Line Valves have been designed by engineers who are constantly studying conditions. Extra strength has been provided where needed, as in the "pipe" necks back of flanges and hexagons, in the hexagons around pipe threads, on long sides of oval bodies, etc. Four-bolt glands are a valuable strength feature.

UNOBSTRUCTED RUNWAYS are an important advantage of all WESTCOTT Valves. In no case do seat ring lugs extend into the waterway.

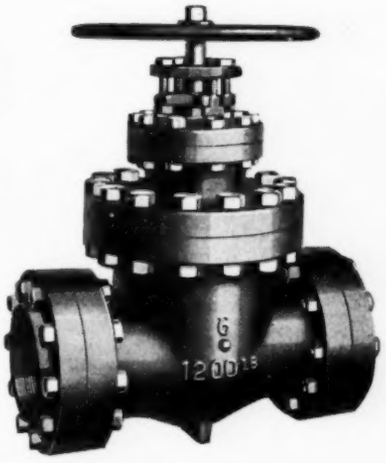
PACKING can be done UNDER PRESSURE, due to double-seated repacking collar on the stem.

TIGHTNESS is insured by parallel-seat design, discs of the full-rocker type, and the accurately made bronze disc rings and seats.

MATERIALS are extra-strong and extra-durable. Body metal used is uniform and close-grained iron and steel alloy, with a tensile strength of 32,000 pounds to the square inch. Manganese bronze stems have a tensile strength of 85,000 pounds to the square inch.

Each valve is tested under water pressure to much higher than its rated capacity, and the working pressure for which it is recommended is cast on the body of each valve.

PIPE LINE VALVES IN ALL SIZES FOR ALL PRESSURES.
ALL-STEEL DRILLING GATES



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NENTAL

Say you saw it in The OIL WEEKLY

"COMPLETE SATISFACTION"

Above: Showing six welded lines crossing the Houston Ship Channel.

Insert: Welders at work at Mathilda Station.

"Your service and products, used in welding our line, gave complete satisfaction," says Frank Kirk, Superintendent.

99.8% PURE

Magnolia Oxygen is compressed into cylinders of 220 cubic feet capacity and is 99.8% pure. There is a saving of 12½% in Oxygen and 12½% in labor for each half of one per cent increase in purity of Oxygen above 98.5%.

Magnolia Acetylene is compressed in Seamless Steel Monolithic cylinders of 125 and 275 cubic feet capacities. This new type of cylinder not only makes for maximum safety, but insures uniformity of delivery of the gas from the cylinders under all conditions.

We carry a full line of Welding and Cutting Equipment and Supplies. We are distributors for Shawinigan Carbide, Page Armco Steel Rods and Anaconda Brass and Bronze Rods of uniform specifications, which will meet the strictest requirements.

If you contemplate any pipe line work, consult our engineers. Immediate deliveries can be made from any of our stores mentioned below.

MAGNOLIA GAS PRODUCTS CO.

Houston, Texas, U. S. A.

PLANTS AT HOUSTON AND BEAUMONT

STOCKS AT GALVESTON, SAN ANTONIO AND CORPUS CHRISTI.

Say you saw it in The OIL WEEKLY

Houston Pipe Line Serves Many Industrial Plants

Including branches to industrial consumers, total length of line is 469 miles; main line pipe is 18 inches and carries high pressure

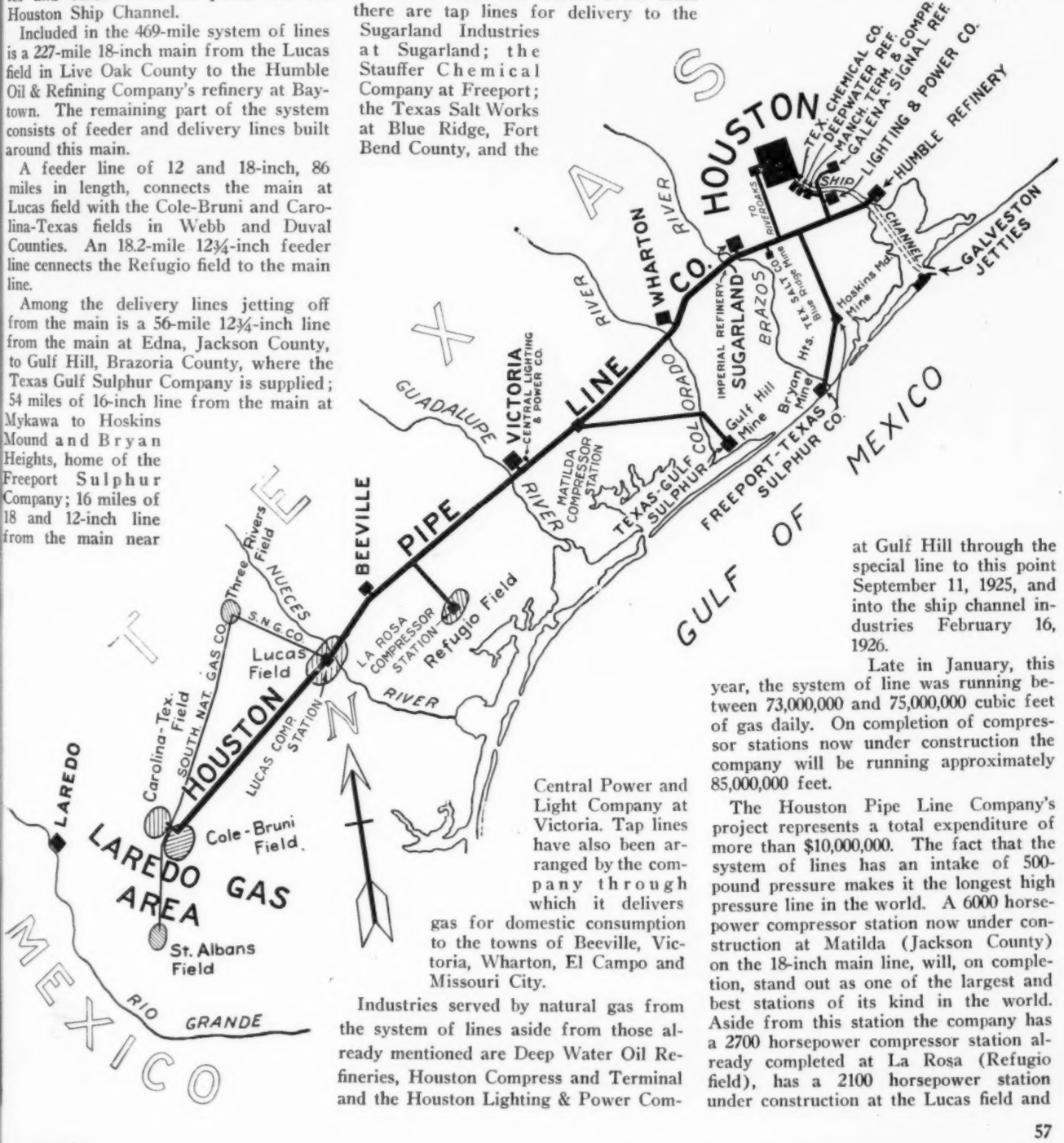
By WALLACE DAVIS
Staff Representative

THE Houston Pipe Line Company, subsidiary of the Houston Oil Company of Texas, has completed 469 miles of gas lines in Southwest Texas, a project started in May, 1925, for the purpose of supplying natural gas to refineries and other industrial plants on the Houston Ship Channel.

Included in the 469-mile system of lines is a 227-mile 18-inch main from the Lucas field in Live Oak County to the Humble Oil & Refining Company's refinery at Baytown. The remaining part of the system consists of feeder and delivery lines built around this main.

A feeder line of 12 and 18-inch, 86 miles in length, connects the main at Lucas field with the Cole-Bruni and Carolina-Texas fields in Webb and Duval Counties. An 18.2-mile 12¾-inch feeder line cennects the Refugio field to the main line.

Among the delivery lines jetting off from the main is a 56-mile 12¾-inch line from the main at Edna, Jackson County, to Gulf Hill, Brazoria County, where the Texas Gulf Sulphur Company is supplied; 54 miles of 16-inch line from the main at Mykawa to Hoskins Mound and Bryan Heights, home of the Freeport Sulphur Company; 16 miles of 18 and 12-inch line from the main near Houston to Galena-Signal refinery and other plants on the upper Houston Ship Channel; and nine miles of 12¾-inch line from the main near Houston, which delivers gas to the Houston Natural Gas Company for supplying 10 of the city's residential additions. Aside from these there are tap lines for delivery to the Sugarland Industries at Sugarland; the Stauffer Chemical Company at Freeport; the Texas Salt Works at Blue Ridge, Fort Bend County, and the Central Power and Light Company at Victoria. Tap lines have also been arranged by the company through which it delivers gas for domestic consumption to the towns of Beeville, Victoria, Wharton, El Campo and Missouri City.



Industries served by natural gas from the system of lines aside from those already mentioned are Deep Water Oil Refineries, Houston Compress and Terminal and the Houston Lighting & Power Company, all of which are located on the Houston Ship Channel.

Nine Months Building

After construction of the main line started in May, 1925, gas was turned into the Texas Gulf Sulphur Company's plant at Gulf Hill through the special line to this point September 11, 1925, and into the ship channel industries February 16, 1926.

Late in January, this year, the system of line was running between 73,000,000 and 75,000,000 cubic feet of gas daily. On completion of compressor stations now under construction the company will be running approximately 85,000,000 feet.

The Houston Pipe Line Company's project represents a total expenditure of more than $10,000,000. The fact that the system of lines has an intake of 500-pound pressure makes it the longest high pressure line in the world. A 6000 horsepower compressor station now under construction at Matilda (Jackson County) on the 18-inch main line, will, on completion, stand out as one of the largest and best stations of its kind in the world. Aside from this station the company has a 2700 horsepower compressor station already completed at La Rosa (Refugio field), has a 2100 horsepower station under construction at the Lucas field and

COOPER

Houston Pipe Li

Progressive Gas Compan

Industrial Prospects for the sale of natural gas seldom ask more two questions, "Can you guarantee an uninterrupted supply of gas can you deliver it at a reasonable price?"

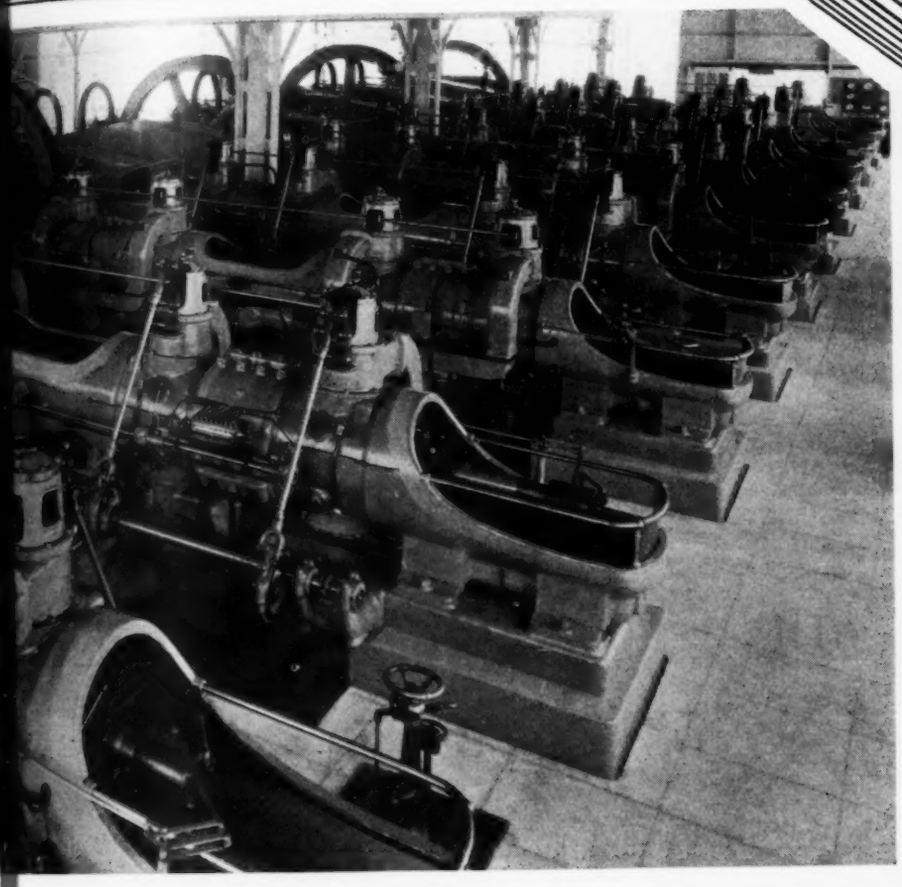
With every other factor favorable, the compressor equipment ch

Photograph at the left shows nine Cooper Type-80 twin gas engine-driven compressors in their Refugio, Texas, station. Another station under construction near Mt. Lucas, Texas, will contain seven Cooper twin Type-80 compressor units and two single Type-80 electric generating units for auxiliary power.

The C & G Cooper C

1605 Kirby Bldg., Dallas

439 E Los A



ENGINES

pe Li hooses Coopers

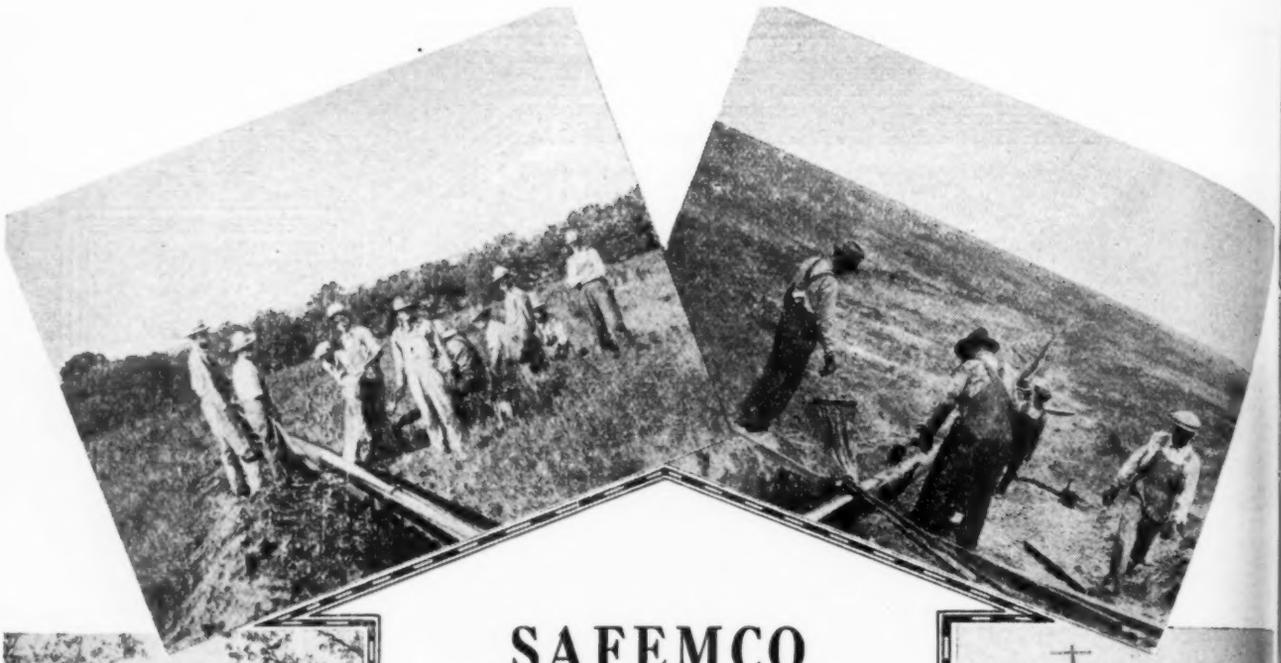
pan eeps Faith With Customers

ay interrupt the service or so add to the cost of delivering gas as to ake it prohibitive. Knowing this, the Houston Pipe Line officials sked the advice of a man with a successful experience in the marketing of natural gas. His advice was to protect their customers and insure peration at a profit by installing Cooper gas engines and compressors.

Their Matilda station, now nearly ready to start, will contain six Cooper 1000 B. H. P. gas engines direct driving Cooper compressors and also two Type-80 twins driving electric generators. It will be almost a duplicate of Magnolia's Latex, Texas, station, shown above at the right.

er C ny, Mt. Vernon, Ohio

439 E Los Angeles 504 Kennedy Bldg., Tulsa



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DALLAS, TEXAS

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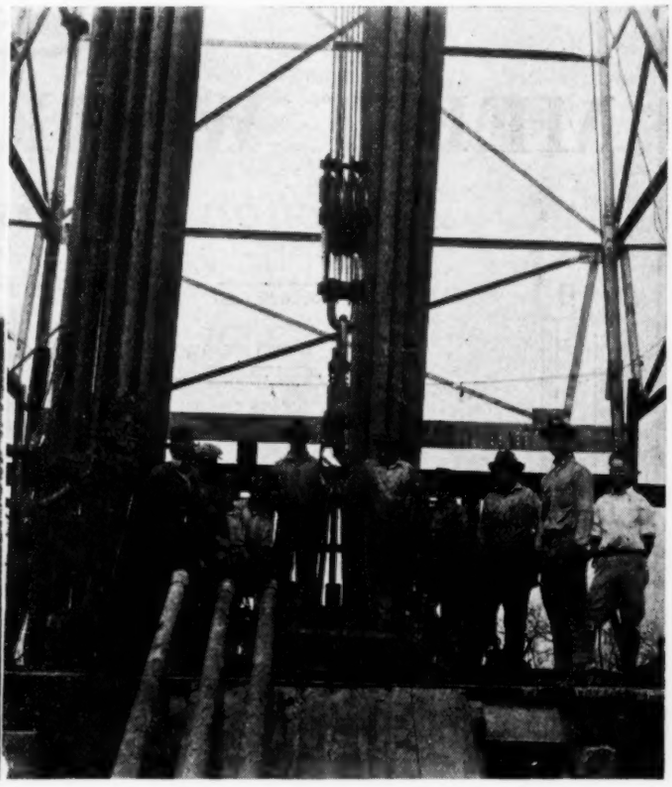
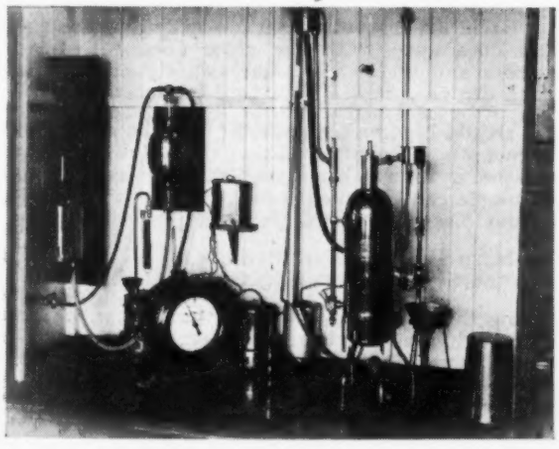
HOUSTON PIPE LINE SECTION

Standard hook-up on Cartwright 13, Mount Lucas

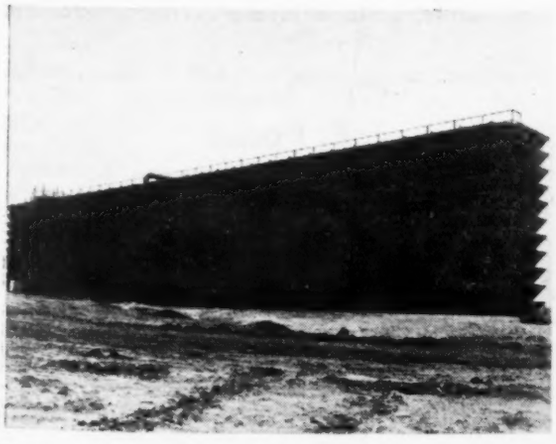


Crew of Cartwright No. 7 at Mount Lucas

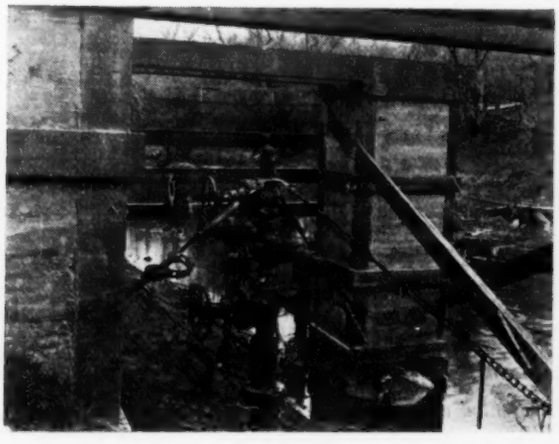


Testing Laboratory at Plant of Texas Gulf Sulphur Co.

Battery of Braun gas coolers at Matilda Station



Braun California Redwoood Cooling Tower, Matilda Station



State No. 1, in the bed of the Nueces River

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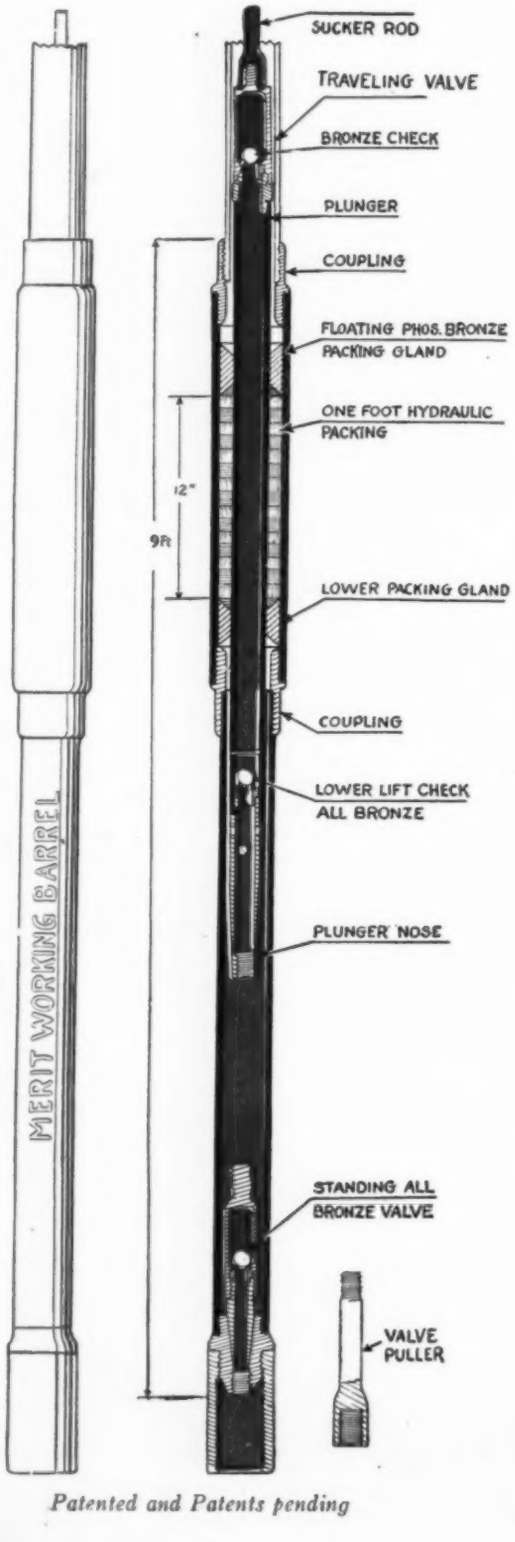

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(2 Construction of the Working Barrel is so designed that the liquid passing through the hollow plunger prevents the liquid from coming in contact with the packing. This does away with the close ground fits and cup leathers and places the wear entirely on the packing, which can be renewed with very low cost.

(3) If it should become necessary to pull the standing valve, the pump is so constructed that this valve may be pulled the same as on any barrel, and that the crown, ball, seat, and nipple can be pulled through the packing and glands without disarranging the packing.

(4) The Merit Working Barrel will pump all grades of fluid from the heaviest to the lightest from all depths.

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plans for another 2100 horsepower station to be built at the Cole-Bruni field.

Compressor Stations

The Matilda compressor station can be cited as an example of the quality of those being installed to serve the line. It is assembled in units of 1000 horsepower Cooper type, and furnished with Allis-Chalmers electric generators and motors, Graver water treating plants, Braun cooling towers and gas coolers, Frederick Iron & Steel Company centrifugals for the pumps, and elevated steel tanks of the Chicago Bridge & Iron Works. The station is housed in a steel building made by the Austin Company of Cleveland, Ohio, and is equipped with electrically welded flanges and piping and fittings of the W. K. Henderson Iron Works and Supply Company of Shreveport, Louisiana. A machine shop in connection with the station is equipped with approximately $100,000 worth of equipment made by the Lodge & Shipley Manufacturing Company of Cincinnati, Ohio.

The E. A. McPherson Construction Company of Fort Worth, Texas, built the line under contract. The line is coupled with Dayton and Dresser couplings throughout with the exception of water crossings, where it is welded. It is built of National tubing (steel pipe) and equipped with Westcott valves. Oxygen and acetylene made by the Bagnolia Gas Products of Houston, Texas, was supplied at the scene of the work for this welding.

Record Water Crossing

Among the records established by this line is the water crossing at the Houston Ship Cahnnel near Baytown, where six 10-inch lines were laid for a distance of 2600 feet with a depth of 45 feet in the center at the point of water traffic. These lines were connected by giant manifolds on the banks of the channel to the 18-inch main. Due to arrangements of having to lay the line across the channel in a single night because of constant traffic over the channel, the lines were connected on the banks and pulled across with a Dorsey winch, a Fordson tractor furnishing the power.

The entire line was painted with products of the American Paint & Supply Company with exceptions of water crossing lines of which no-oxide, made by the Dearborn Chemical Company of Chicago, was applied to withstand any chemical action.

The Houston Oil Company of Texas produces most of the gas bought by the Houston Pipe Line Company for its line, although large quantities are purchased from other producing companies operating in Southwest Texas fields. In its production work the Houston Oil Company maintains a complete line of equipment for operating. It has 10 International steel derricks which are moved from one location to the next as wells are completed. Together with these the company has five Johnson rotaries, two Imperial and two Boykin rotaries. In the field work at present the company has two giant Mud Hog (Oil Well Supply Company) pumps and several regular 12x5x10 pumps, several 12x12 drilling engines and two 70 horsepower Oil Well boilers for each rig, one Union Tool Company twin engine and Union Tool draw works and sufficient supplies of Hughes rock bits and tool joints, Elliott core barrels, Emsco screen, Layne & Bowler packers and setting tools, W-K-M drill collars, Darling, Crane and Kerotest valves, Westcott meters, Foxboro gauges and Broderick & Baskom wire rope. Such consumption of equipment goes to show the completness of the company in producing the natural gas to be marketed by its subsidiary.

Houston Pipe Line Company Has Ample Gas Reserve

More than 12,000 acres in five fields proven for production in Southwest Texas now connected and other territory in reach

Houston.—The $10,000,000 gas line system of the Houston Pipe Line Company reaches five gas fields in Southwest Texas, practically all of the sources of natural gas in this part of the state. Its parent company, the Houston Oil Company of Texas, which supplies the Houston Pipe Line Company with the major portion of its gas for distribution, today has production in these five fields good for a conservatively estimated daily yield of 1,320,000,000 feet, open flow. This production is coming from 48 wells in territories where the producing company has 12,200 acres of proven area besides blocks totaling 90,000 acres in and around the fields yet to be tested for production.

Aside from the supply of gas produced by the Houston Oil Company of Texas the pipe line company is buying gas from other sources that runs its possible daily supply to greater figures. Such data give an idea of the supply of natural gas available for the distributing Company's needs.

The present production of the Houston Oil Company is coming from 14 wells in the Refugio field, 14 in the Cole-Bruni field, 12 in the Lucas field, seven in the Carolina-Texas field and one well in the St. Albans field. The proven gas territory includes 5,900 acres in the Cole-Bruni field, 4000 acres in the Lucas, 1200 acres in the Carolina-Texas, 1100 acres in the Refugio field and the amount of acreage proven by the single well at St. Albans. The 90,000 acres of land controlled around these pools, chief of which is around the Lucas field, is to be drilled as the gas is needed.

Quantity Run

On February 1, 1927, the Houston Pipe Line Company had taken roughly 19,000,000,000 cubic feet of gas from its combined sources. More than 12,000,000,000 feet had been withdrawn from the Refugio field, 5,000,000,000 feet from the Lucas field and more than one-half billion feet from the Cole-Bruni field, the latter figure representing gas runs to December 1, 1926. The feeder line from the Carolina-Texas field began running gas January 20, 1927, while the producer in the St. Albans pool was still capped early in February.

On February 1, 1927, the 469-mile pipe line system was running approximately 73,000,000 cubic feet daily, and on completion of compressor stations at Matilda, Jackson County, and in the Lucas field, the daily run will reach roughly 85,000,000 feet.

In connection with the completion of the great pipe line project of the Houston Pipe Line Company it is interesting to know some of the historical facts about the fields furnishing gas for the line.

Lucas Field

Lucas field, Live Oak County, the most valuable holding of the producing company and thought to be the largest and longest lived gas field in the South Texas gas belt, gained first recognition January 21, 1923, when the Cartwright No. 1, discovery well of the field, blew in for an estimate of 20,000,000 to 50,000,000 cubic feet from 876 feet. After running wild for a short time the well cratered the hole and was abandoned. The No. 2, after being temporarily abandoned at 1200 feet, was later completed at 2138 feet for 45,000,000 cubic feet. The No. 3 on the Cartwright tract was one of the most difficult wells in the field to complete, and has more interesting history connected with it. Located 250 feet north of the No. 1, it showed gas at 1657-65 feet, and was good for 2,000,000 feet when tested at this depth. Later it was deepened to 2400 feet and blew out 300 feet above the drill, flowing out of control for 56 hours. After being killed it was deepened to 4128 feet for geological information and for prospects of deep gas. Finding nothing of

significance to this depth, operators plugged back to 2200 feet, where a small well was completed. Later still the casing collapsed between 1500 and 1600 feet, and enough gas for fuel was supplied the company form this depth.

Since 1923 the Lucas field has been proven for a width of two miles and three miles in length, with only one edge or limit determined, and with a total of 40,000 acres, or 60 square miles, leased up in a single block.

Refugio Field

The Refugio (La Rosa) field, in northern Refugio County on the Mission River between Refugio and Woodsborough, got its first gas from the Texas Gulf Oil & Gas Association's W. J. J. Heard No. 1, sometimes known as the Bessie Byle No. 1, which was completed for a small gasser from 1902 feet late in 1919. It was capped for several months and failed to make commercial production when a line was laid, due to encroachment of water. The next operator in the Refugio section was the Pratt-Hewitt Oil Company, which took over some leases on the Rooke land and drilled four wells. The first three tests failed, and Rooke No. 4 was completed for roughly 50,000,000 feet of gas from a 2414 foot depth late in 1923. The 2400-foot depth has been the most prolific producing level in the field, and has contributed the bulk of the gas.

The greatest development in the Refugio field has been done by the Houston Oil Company of Texas, and this field has contributed most of the gas already run by the Houston Pipe Line Company's line. Rooke No. 1, located on a separate Rooke lease from the Pratt-Hewitt's Rooke wells, was the first well completed by the Houston Oil Company, and made 84,000,000 cubic feet from the 2400-foot level after several billion feet of gas had been lost from the producing sands of the field.

Due to a continued decrease in well pressure in Refugio field, it is indicated this area will be the first of the company holdings to be depleted. The former working pressure at Refugio of from 600 to 800 pounds early in 1926 is now as low as 200 pounds from the 2400-foot level.

Other Fields

The Cole-Bruni, Carolina-Texas and St. Albans gas fields are the outgrowth of development work started in 1920 by O. W. Killiam, independent, in his search for oil following the striking of gas in Zapata County by Frank Reiser in 1908 while drilling for fresh water. Killiam drilled three dry holes about five miles northeast of the Zapata County pool, and then moved into the Mirando City territory to do prospect work. He encountered a gas sand at 1400 feet, and at a location one mile east completed the first commercial oil well in the Laredo district. Within the past six years six gas pools have been opened in Webb and Duval counties, chief among which are the Cole-Bruni and Carolina-Texas fields, located along the border line of the two counties. Both the Cole-Bruni and Carolina-Texas fields have been the source of great surprises to operators, turning out to be gas fields after oil prospects led to the pioneer drilling, and later made oil wells when operators were seeking to widen the gas area. The oil production has been small in both fields, however, while the two fields are considered among the major gas producing areas of Southwest Texas.

The great pipe line project of the Houston Pipe Line Company, starting less than two years ago, has had a remarkable development. It has had great success so far, and all indications point to a more successful future. The company was marketing gas less than six months after the construction started. It is in a position to extend the line to any section of Southwest Texas in a short time in the event new gas sources are discovered.

Since completion of the main line the Houston Oil Company of Texas, has discovered gas in Goliad County at a point just seven miles north of the main line. The territory is not being developed by the company, and in case of commercial gas in Goliad County a tap line can be rapidly connected. Aside from the wildcatting activity for new gas fields the company is carrying on drilling in each of its commercial fields, supplying gas for the line as is needed. The present production together with the potential yield of the companies holdings offers an inexhaustible source of supply for many years.

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By WALTER H. JEFFERY

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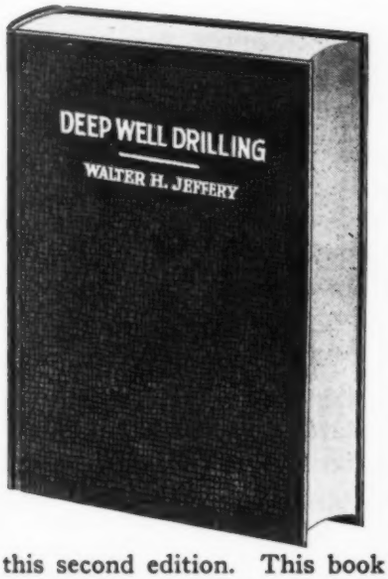

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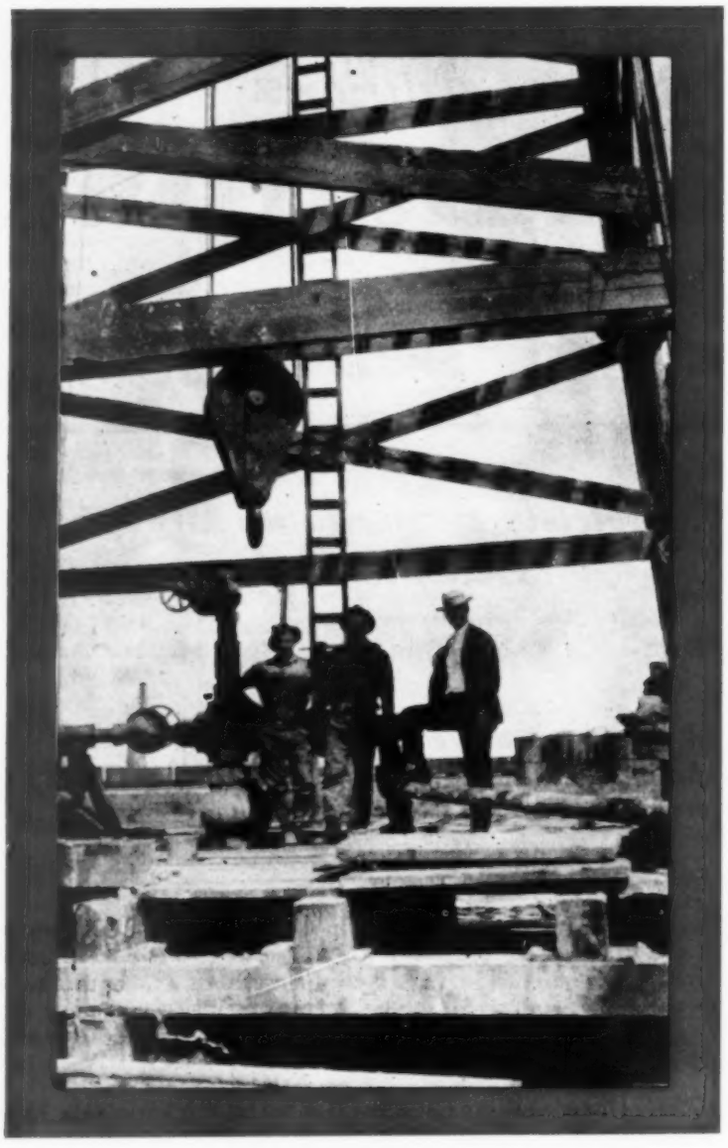

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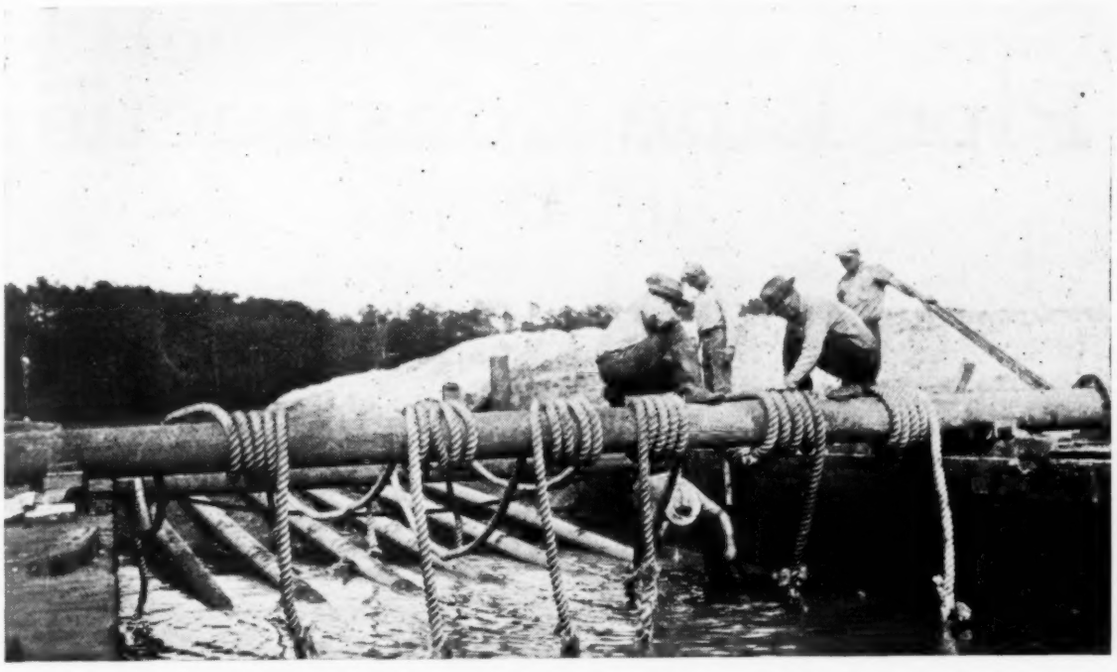


Lowering pipe into the Houston Ship Channel, crossing to the Humble Oil & Refining Company's Refinery at Baytown

Many Construction Obstacles Met In Building Gas Line

Houston Pipe Line Company's line across the Texas coast country was over level ground but met many rivers and marshes

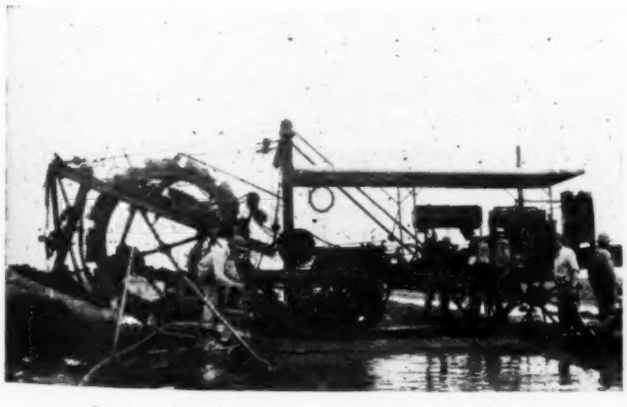
By J. D. ISAACKS

COMPLETION of the Houston Pipe Line Company's 469-mile gas line system from South Texas fields to commercial consumers on the Houston Ship Channel and along the Gulf represents the overcoming of many difficult problems. It further represents many remarkable pieces of construction work, and the builders have records to their credit which will be hard to beat.

In the path of the line's right-of-way are 10 major and 28 minor stream crossings and numerous arroyos.

The Colorado River offers a good example of the construction difficulties. The government has been cleaning the channel of the Colorado as a flood relief measure. There had been for years numerous log-rafts lodged in the sands of its bed and banks. As these were removed the channel began to deepen and it was found after the company had strung three 12-inch lines across the bottom, that it has lowered enough to leave these lines suspended high in the water. Then four eight-inch lines were thrown across with several hundred feet of slack, tied in and placed in service. The 12-inch lines were then cut and lowered to the bottom with sufficient slack to permit settling with the deepening of the channel.

The Brazos, Colorado and Guadalupe all offered difficulties with shifting banks. These streams began shifting at points where the line crossed and it became



Buckeye Traction Ditcher at work on the line

Chaplin-Fulton Regulator installation

Pipe Line Construction

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Amongst the Companies contracted with are the following:

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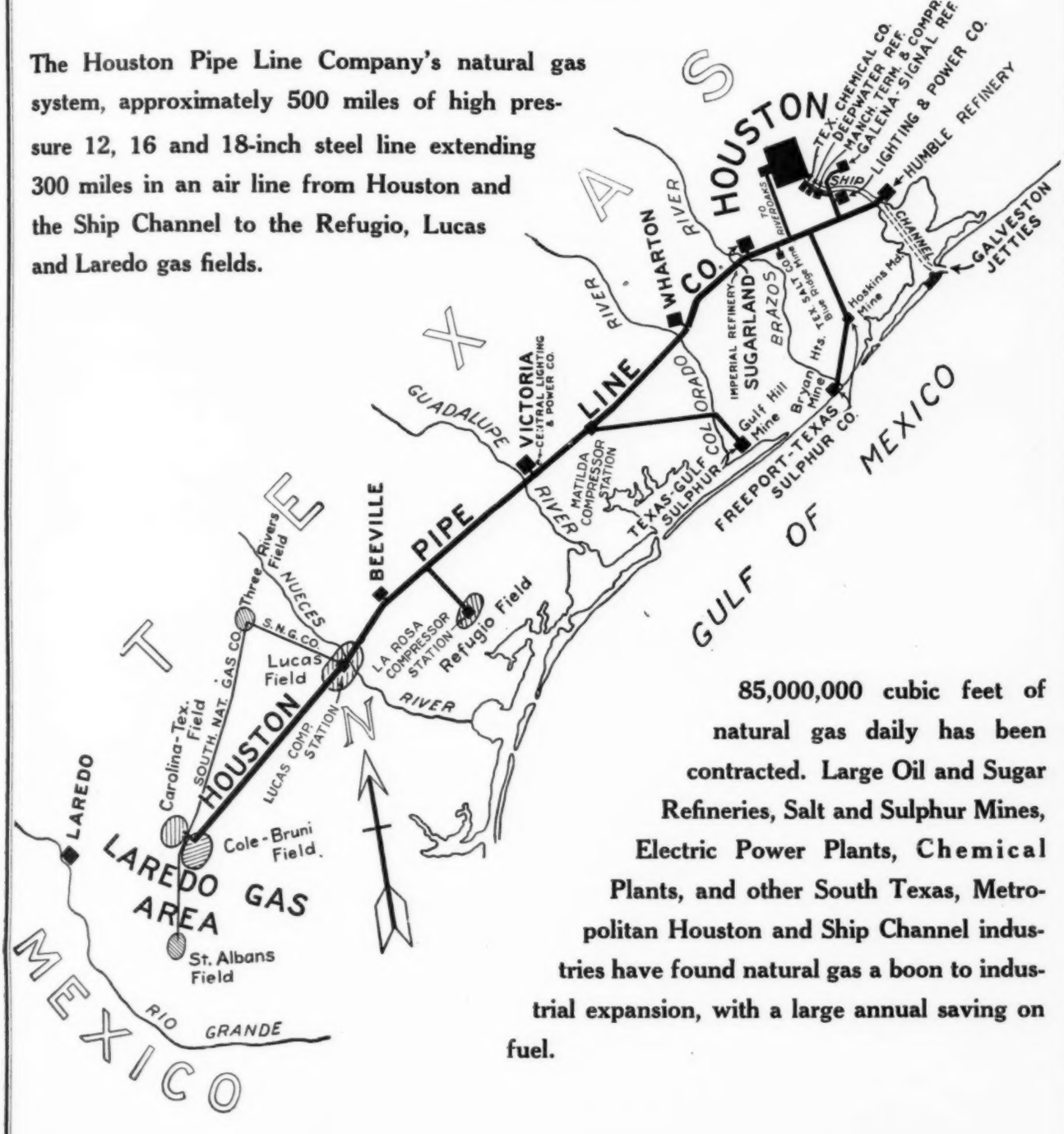
Magnolia Petroleum Company	Roxana Petroleum Company
Prairie Pipe Line Company	American Petroleum Company
Ohio Oil Company	Pierce Oil Company
Illinois Pipe Line Company	Peoples Gas Company
Pure Oil Pipe Line Company	Magnolia Gas Company
Oklahoma Pipe Line Company	Lone Star Gas Company
Buckeye Pipe Line Company	Southern Gas Company
Swiftsure Petroleum Company	Latex Gas Company

The Houston Pipe Line Company

Wholesale Distributors of Natural Gas

The Houston Pipe Line Company's natural gas system, approximately 500 miles of high pressure 12, 16 and 18-inch steel line extending 300 miles in an air line from Houston and the Ship Channel to the Refugio, Lucas and Laredo gas fields.



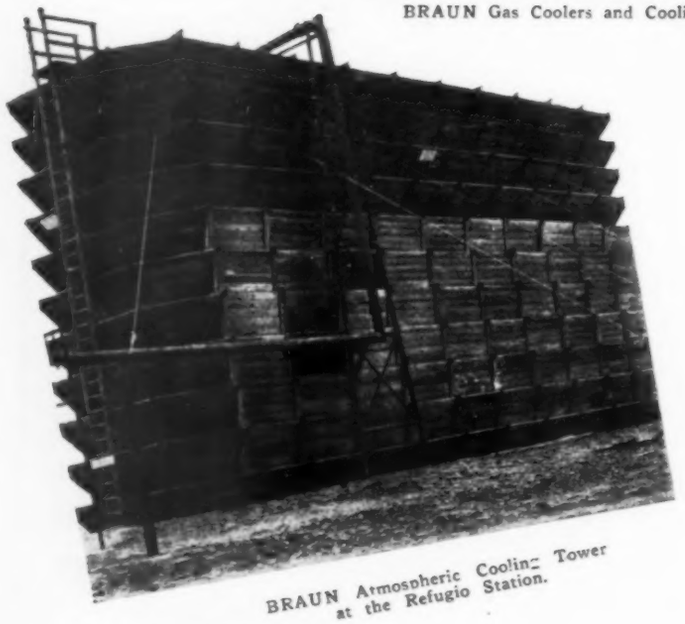
85,000,000 cubic feet of natural gas daily has been contracted. Large Oil and Sugar Refineries, Salt and Sulphur Mines, Electric Power Plants, Chemical Plants, and other South Texas, Metropolitan Houston and Ship Channel industries have found natural gas a boon to industrial expansion, with a large annual saving on fuel.

THE HOUSTON PIPE LINE COMPANY

HOUSTON :-: TEXAS

BRAUN

BRAUN Gas Coolers and Cooling Towers at the Matilda Station.



BRAUN Atmospheric Cooling Tower at the Refugio Station.

BRAUN Gas Coolers and Cooling Towers are installed on the Webb County to Houston, Texas, natural gas line, recently completed by the Houston Pipe Line Company. The installation at the Matilda Station (illustrated above) consists of six 1-160 BRAUN high pressure gas coolers, rated at 75 million cu. ft. of gas per day, and a BRAUN size 432 atmospheric cooling tower.

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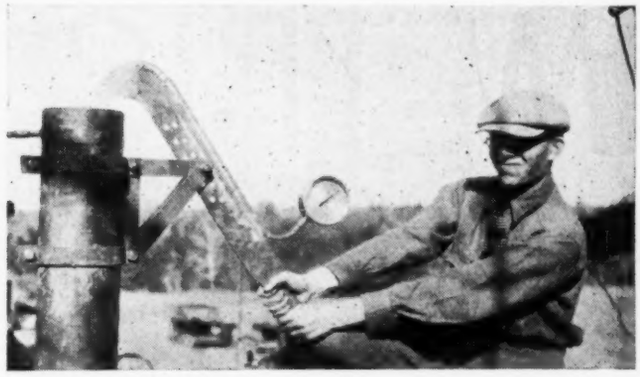


Cartwright No. 13 cleaning itself—and gauging the flow with a Foxboro gauge

necessary to build steel rivets with wire reinforcing into the banks to prevent further erosion. This work is still in progress and will require many months to complete.

Ditching Difficult

The line traverses many miles of rice fields and in order to prevent flooding of the work and draining of the rice fields, levees were built on each side of the line before any ditching was done. Then the water inside the levees was drained off and the men worked in mud instead of water and the rice fields retained their full supply of water.

In the bottoms of the five forks of Mustang Creek, which the line crossed, there was a shifty silt formation that caved with each shovel of earth removed. At times the trench for the pipe was as much as 25 feet wide.

Most of the ditching was done with Buckeye traction ditchers and over much of the way tracks had to be laid for the machine. In some of the bottoms and swamps this work had to be done by hand. This hard work included everything from blasting rock to bucketing silt. The weather was at most times favorable to the work.

Canals in the rice fields offered quite a problem. Special crossings had to be made over numerous canals in order not to destroy the water supply of the rice country.

The swampy country around Freeport also offered many problems. One of these was transportation of the ditcher and the pipe laying machine. Then at the crossing of the Brazos at Freeport and upon emerging into the swamps around the sulphur plant, it was found that the water was contaminated with chemicals that would eat up the pipe in a short time. Over this country the line was built on trestles above high tide and then treated with No-Oxide to prevent erosion from vapors.

In the face of these and many other obstacles the company laid this line and its branhes and gathering lines, totaling in all over 600 miles, in less than two years. There were at various times, over 2,000 men employed on the job. Most of these were employees of Doc McPherson, while the company necessarily had to keep a rather large force working at all times.

Record Job

While there have been longer pipe lines laid and larger lines laid, it is doubtful if one was ever laid as large as this and as long as this and placed in a high state of operation in so short a time. In less than four months from the date of the start, the Houston Pipe Line Company was delivering gas to the Texas Gulf Sulphur Company at the world's largest sulphur plant. Shortly following this the Ship Channel industries were tied in, and recently the Freeport sulphur plants at Bryan Mound and Hoskins Mound have been connected.

In the near future a line from Gulf to Freeport is contemplated in order that a loop may be formed and thereby serve both plants and any intermediate industries more effectively. This line will be through marshy country and lowlands practically all the way.

Credit for the remarkable work evidenced in the building of the system of lines is due the leaders in carrying out the project. Frank Kirk, pipe line superintendent, and F. Y. Hutcheson, chief engineeer, are recognized as two of the most important figures in making the project the success it is. Credit is also due Edwin Allen ("Doc") MacPherson of Fort Worth, head of the McPherson Construction Company and one of the biggest oil and gas pipe line contractors in America. His company carried out the contract for laying the line. Mr. Hutcheson spent many months on preliminary work and surveys before final location was made for the line. After definite location was made Mr. Kirk was placed in charge of the building. It was these two officials who were instrumental in moulding the initial plans of right-of-way, and construction.

Westcott Valve set-up, showing by-pass

Pipe in storage yard

Dallas TULSA Los Angeles

Say you saw it in The OIL WEEKLY

Mechanical Features Insure Gas Line Efficiency

Cost secondary as compared with dependable service in selection and installation of materials in line

By J. D. ISAACKS

FOR more than a year, natural gas from the Southwest Texas fields has been traveling through the pipe line of the Houston Pipe Line Company to Houston under rock pressure.

Considering the hazards of lost pressure through leaks, line resistance and other obstacles to delivery through a line over 300 miles long, this is evidence of a remarkable efficiency in construction and operation. It is the result of construction work carefully planned and skillfully executed which marks this line a real feat of engineering.

This efficiency is the result of unusual precautions taken in the construction of the line to make it dependable under all conditions of service, and facilitities installed to insure uninterrupted delivery. Every five miles on the line is a gate valve and by-pass assembly with pressure gauges. For a distance of 200 feet on each side of these valves the pipe is welded. The intermediate connections are Dayton couplings, proper arrangements being made for expansion and contraction. All flanges for bolt connections are welded to the pipe joint to eliminate any thread leaks or failures.

Gate valves on the line are housed in especially built boxes with steel plate covers. These covers are coated with No-Oxide to withstand corrosion, and are built in four sections, hinged to the walls and locking in the center with one staple and lock.

Different sizes of pipe are used in the line to amply care for peak pressures and storage requirements. For a distance of seven or eight miles on the discharge side of compressor stations on the main line, the pipe is 16-inch heavy National Tube Company's line pipe. Beyond these points the pipe is slightly lighter National pipe, 18 inches in diameter up to the next station or delivery point. Future developments were anticipated by placing the heavier pipe at points where compressor stations may be located in the future.

The line serves many industries along the way and at each point where a service line branches off there is a meter house with Bristol Recording Pressure gauge, Ashcroft pressure reading gauges, and a Chaplin-Fulton regulator installed to provide for consistent delivery. This is fully attested to by the statement of Mr. Wood of the Sugarland Industries, that they are now operating with an overall efficiency of 82% as against 78% when they were using oil. In addition to the increased operating efficiency, they are effecting a saving of several thousand dollars per month on their fuel bill. A further economy is effected in the life of the boiler equipment, due to their ability to automatically control the heat to a consistent temperature. Simliar statements come from other industries they serve.

Stream Crossings

At stream crossings, provision had to be made for the deepening of the channels. This was taken care of by using a special flexible line pipe and throwing a long swing up-stream in the river to allow sufficient length of line for settling with the stream bed. The 18-inch line is carried up to the banks of the river and at this point a manifold is built in with three 12-inch lines crossing the river. Since two 12-inch lines have more carrying capacity than one 18-inch line, one line can be completely out of order and yet full load can be carried to consumers right along. At some of the crossings four eight-inch lines were thrown across to provide this factor of safety. Crossing the Houston Ship Channel, required additional precautions and six 10-inch lines were laid. All these stream crossings are of welded connections.

Watchmen are kept on the line in addition to the regular line walkers, particularly at river crossings. Telephones are in constant operation over the line and any defect can be quickly located. There is a dispatcher on duty in the Houston office at all hours, and likewise men on duty at all hours in the various field offices, to whom reports can be made quickly.

The pressures from the fields at Cole-Bruni, Carolina-Tex and Mount

Welded manifold at stream crossing

Making a Fire Bend

The Boys Used *W-K-M Rotary Slips* on Rooke No. 5

As is the case with almost all rotary drilled wells, W-K-M Rotary Slips were relied upon by the crew shown above to hold the drill stem at all stages of the game on the Houston Oil Company's Rooke No. 5, at Refugio.

W-K-M Bottle Neck Drill Collars were also used by the boys.

But tools alone, of whatever make, were not all that was required to bring to successful completion the Houston Pipe Line Company's tremendous Natural Gas Pipe Line project.

Behind the tools were executive resourcefulness and initiative of the highest type, vision and courage given to but few, and the willingness to employ a huge capital sum indefinitely in the service of the public.

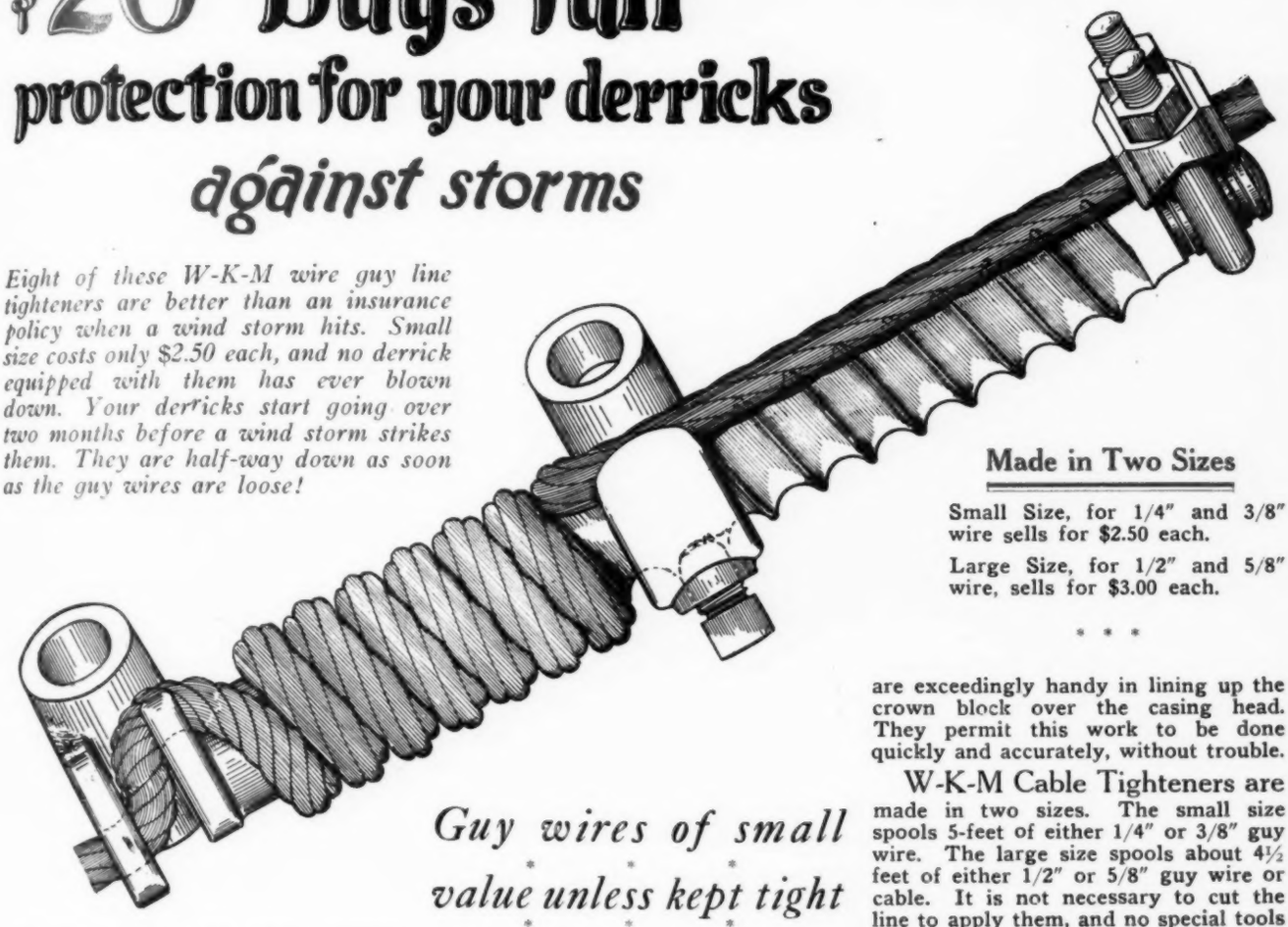
The W-K-M Company, Inc., is glad to have shared, however lightly, in the Houston Pipe Line Company's remarkable achievement toward Houston's progress, and extends to the officers and employes of the Company heartiest congratulations and best wishes for long and profitable service.

W-K-M COMPANY, Inc.

HOUSTON, TEXAS

$20 buys full protection for your derricks *against storms*

Eight of these W-K-M wire guy line tighteners are better than an insurance policy when a wind storm hits. Small size costs only $2.50 each, and no derrick equipped with them has ever blown down. Your derricks start going over two months before a wind storm strikes them. They are half-way down as soon as the guy wires are loose!



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Made in Two Sizes

Small Size, for 1/4" and 3/8" wire sells for $2.50 each.

Large Size, for 1/2" and 5/8" wire, sells for $3.00 each.

* * *

Try One Out—*free!*

To every oil man who realizes the damage a wrecked derrick can do to standard rigs, engine houses, storage tanks, sheds and to production, the W-K-M Company wants to send one of its Cable Tighteners to try out.

There is no obligation whatever incurred on your part—in fact, we solicit the privilege of sending you one of these units for a test on one or more of your own guy wires.

We firmly believe that once you have taken the slack out of a cable with one of these Tighteners you will want to safeguard every derrick on your lease with them. No derrick equipped with them has ever blown over.

Send the coupon today, or write us what size you would like to try. The sample will go forward in the next mail. No charge, except a memorandum charge, and you may return it for credit any time within ten days.

Guy wires of small value unless kept tight at all times

The W-K-M Cable Tightener is so easy to use, and has so much spooling capacity, that crew will keep cables tight always.

Guy wires are of little or no value to a derrick unless they are kept tight at all times. Loose wires can't hold a derrick steady while drilling is going on; they can't keep it plumb over the hole, and they can't keep it from toppling over in a high wind or sudden storm.

Moreover, loose guy wires can't prevent even a moderate wind from rocking or swaying a derrick, resulting in wracked joints and loosened nails. Loose nails mean girts and braces quickly rotted at the nail holes, prematurely rusted nails, and a generally weakened derrick.

But, for $20 you can buy eight W-K-M Cable Tighteners for 3/8" or 1/4" wire which will keep your guy wires absolutely tight, and prevent all these things. They represent by long odds the best and cheapest insurance you can buy against wrecked derricks, engine houses, standard rigs, storage tanks and tool sheds, and also interrupted production.

For gin poles, star rigs, and other masts and temporary poles, they are exceedingly handy in lining up the crown block over the casing head. They permit this work to be done quickly and accurately, without trouble.

W-K-M Cable Tighteners are made in two sizes. The small size spools 5-feet of either 1/4" or 3/8" guy wire. The large size spools about 4½ feet of either 1/2" or 5/8" guy wire or cable. It is not necessary to cut the line to apply them, and no special tools are required. They take up all slack in the loosest lines, and have enough reserve capacity to keep cables tight as long as a derrick lasts. Then they can be used on another derrick.

Without the least obligation, we want you to take one of these Cable Tighteners out on your lease and try it on a loose wire.

Send the coupon today, stating which size Tightener you'd like to try.

W-K-M Company, Inc.
HOUSTON, TEXAS

* * * * *

Use this free trial Coupon

W-K-M COMPANY, INC.,
HOUSTON, TEXAS

Gentlemen:

In accordance with the terms of your free offer, you may send us one W-K-M Guy Line Tightener. It is understood we may return this for credit within ten days.

( ) Send Large Size Tightener.

( ) Send Small Size Tightener

Name.....

Street.....

City.....

State.....

Lucas is so great that the gas from the Refugio field could not get into the main line, so a compressor station was built at La Rosa in the Refugio field to boost the pressure of these wells sufficiently to the line against the pressure from the other fields. This is the only compressor or booster station operating at present. However two others are under construction—one at Matilda, near the town of Edna, and one at Mount Lucas.

The station at La Rosa has seven C. & G. Cooper compressor units of 170 H.P. each with provisions made for extensions when needed. There is also a battery of Braun gas coolers for the station and a cooling tower of sufficient size to care for the water needs of the plant. An elevated steel tank supplies storage and pressure delivery for the water. Wyatt scrubbers are installed to clean the gas of sand and other foreign solids before it is taken into the compressors. The compressors are the gas engine type using the fuel that is coming to the station from the fields. The plant is housed in an Austin steel building, which likewise can be extended as needed.

Camps and Shops

The Houston Ready Cut House Company has furnished many sectional houses for the living quarters and these have become standard equipment at the various camps. Field warehouses and offices are to be found at each station, as well as in fields where no station is contemplated. Machine shop equipment has been installed at La Rosa and a complete machine shop is under construction at Matilda.

Traveling cranes with chain hoists are part of the standard equipment in the main compressor buildings. These are installed with the steel building frame and permit the easy handling of the machinery at installation and for repairs that might become necessary later.

Over 1000 cubic yards of concrete were poured in the construction of foundations and machine bases at the La Rosa station. The materials furnished in the erection of these stations, was supplied by the company, when the man in the field could show where and how it was suited to the particular job and that it offered long life and good service. Frank Kirk says that if any superintendent or foreman on the whole job failed to get what he needed on any phase of the work, it was because he could not show that it would be economical to the management. C. B. McKinney, who has gotten much done in the construction of this line at an extremely low cost, was always ready to "go the limit" for good equipment, but first had to be sold on the idea that it would give the service required.

La Rosa Station

A duplicate of the La Rosa station is to be erected at Mount Lucas. Work has already started and it will only be a short time till this station is increasing the delivery to the main line station at Matilda. The Mount Lucas station will pull gas from Cole-Bruni and Carolina-Texas, 72 miles away, and boost it into the Matilda station. The Mount Lucas station will be located in the center of the field of that name.

The station at Matilda is near Edna, in Jackson County, and will be a 6000 horse power installation with six 976 horse power Cooper Gas Engine-Compressor units installed. The site for this station is almost an ideal one, being one of the highest points in the county, on soil that offered advantages for construction as well as living accommodations. A lake reservoir is being dug at this station to insure adequate water supply. In the foundation work 3000 cubic yards of concrete were poured in the main, for machinery foundations.

The completion of the three stations described above will increase the possible delivery of gas to consumers by approximately 20 per cent, without increasing the sizes of the line.

Movement from Oklahoma and Texas Panhandle Boosts Magnolia's January Runs

Dallas, Texas.—Magnolia Pipe Line Company's crude runs from Oklahoma, Texas, Arkansas, Louisiana and Kansas climbed to a new peak level during January with a total of 3,444,602 barrels, or a daily average of 111,116 barrels for the 31 day period. Increased runs from the Seminole district, Oklahoma, and the Texas Panhandle were largely responsible for the new record, as the daily average runs in January surpassed December figures by 11,961 barrels.

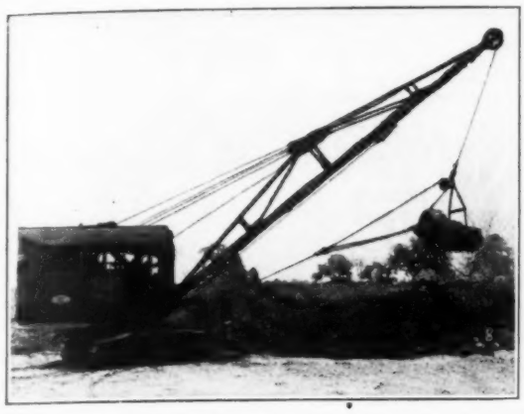
Oklahoma was the largest source of crude supply for Magnolia during January, while Texas occupied second place. Magnolia's combined runs from the Wewoka and Seminole districts amounted to 793,903 barrels during January, with the latter area furnishing 508,253 barrels. Late in January Magnolia was adding to storage in Oklahoma at the rate of about 10,000 barrels daily.

A substantial gain in crude runs from the Texas Panhandle district was registered by Magnolia during January due to the landing of the McMan Oil & Gas Company's daily output for purchase. Magnolia handled 421,794 barrels in this district during January, and stored same at the Kings Mill tank farm, which contained about 3,140,000 barrels of storage oil at the close of January. A 10-inch pipe line outlet from this tank farm to Magnolia's trunk line system in Eastland County, Texas, is well underway. In order to make room for Panhandle crude in the Eastland-Stephens County area when runs exceed the capacity of the eight-inch line leading to Beaumont, Magnolia is draining all tankage. Magnolia withdrew 330,178 barrels during January from the Eastland - Stephens County area, and 365,376 barrels during the month of December.

Tanker shipments of crude from Beamont export terminals during January amounted to 493,055 barrels, or practically the same as the previous month. This crude goes to Standard of New York and other refiners on the Atlantic Coast. Magnolia's water shipments of fuel oil jumped to 19,380,973 gallons during January for a gain of 7,786,476 gallons, while the tanker movement of refined oils (gasoline, naphtha, lubes and kerosene) dropped about ten million gallons, with a total of 37,607,750 gallons for January.

Total crude runs made by the Magnolia Pipe Line Company from fields in Oklahoma, Texas, Arkansas, Louisiana and Kansas during December and January follow:

Field—	December Totals	January Totals
Seminole-Wewoka	658,308	793,903
Cushing	206,083	225,440
Healdton	197,635	209,384
Hewitt-Graham	148,263	153,124
Yale	68,367	68,280
Burbank	55,112	46,996
Duncan	47,674	46,866
Augusta (Kansas)	41,830	45,429
Cement	25,601	23,264
Walters-Beaver Creek	8,583	8,081
Total Oklahoma and Kansas	1,457,456	1,620,767
Luling	455,502	448,586
Panhandle Dist.	264,028	421,794
Mirando Dist.	135,381	156,489
Electra	105,049	107,557
Archer County	83,072	87,470
Burkburnett	78,439	75,985
Lytton Springs-Lockhart	59,935	56,184
Mexia-Wortham	49,700	49,490
Gulf Coast-Spindletop	25,791	31,525
Desdemona-Comanche County	22,600	22,802
Corsicana-Powell	15,536	18,100
Ranger-Olden	16,098	16,189
Stephens County	12,273	12,305
Corsicana (Heavy)	7,711	8,548
Petrolia-Clay County	5,361	5,468
Thrall-Williamson County	1,683	1,590
Panola County	356	563
Coleman County	...	107
Total Texas	1,339,927	1,520,752
Smackover	136,535	150,778
El Dorado	37,413	32,343
East El Dorado	2,350	3,074
Total, Arkansas	176,298	186,195
Pine Island	35,728	39,908
Bull Bayon	34,129	38,659
Cotton Valley	26,689	34,500
Haynesville	3,584	3,821
Total, Louisiana	100,130	116,888
Total for five states	3,073,811	3,444,602



P & H DRAGLINES IN THE OIL INDUSTRY

A P&H Dragline played an important part in constructing the natural gas line built by the Houston Pipe Line Company.

Such concerns as the Standard Oil Co., General Petroleum Co., Anglo Mexican Petroleum Co., Galena-Signal Oil Co., Union Oil, Shell Oil Co., are among the other users of P&H Excavators.

Harnischfeger Corporation
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Dallas Office—401 Fidelity Union Bldg.
AGENTS
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P&H EXCAVATORS

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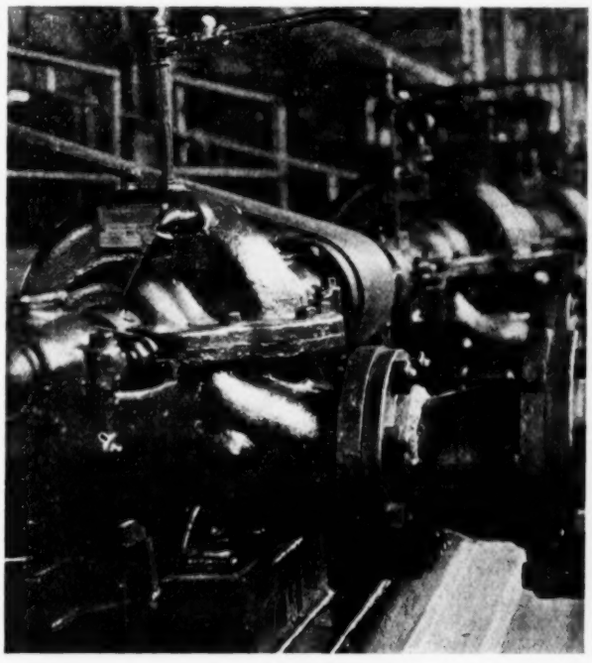

Houston Pipe Line Company Uses Frederick Pumps

The new line of the Houston Pipe Line Company is recognized as being one of the finest gas lines in the United States. Like most leading industrial concerns, this company chooses its equipment with expert judgment. Fifteen Frederick pumps have been purchased by the Houston Pipe Line Company, testifying as to this company's opinion of our pumps.

Frederick centrifugal pumps are made in types suitable to virtually every kind of service. Each pump is built specifically for the actual conditions under which it will operate and is definitely guaranteed as to its performance under these conditions.

The accompanying illustration shows the installation of two Frederick pumps at the Refugio Station of the Houston Pipe Line Company. One is a 4-inch pump handling 500 gallons per minute at a 68 foot head; the other is a 5-inch pump handling 900 gallons at a 92 foot head.

THE FREDERICK IRON & STEEL COMPANY
FREDERICK, MARYLAND

Texas Representative
DAN T. MOORE
438 West Bldg.,
Houston

THE LAYNE

Keystone, Wire Wrapped
SCREEN —

Lead Cone and Canvas
PACKERS —

and Dependable
SETTING TOOLS —

were used by the Houston Gulf Gas Co. and Houston Oil Company, and Houston Pipe Line Company in their production activities in bringing to Houston its present **natural gas supply.**

A quarter of a century of screen and packer specialization assured them as it does our many customers throughout the industry of real service, based on scientific quality.

The Layne & Bowler Co.

HOUSTON, TEXAS

The Layne New York Co.
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The Layne & Bowler Corp.
Los Angeles, Calif.

Vickers Limited
London, England

Three Booster Stations Used on Houston Line

Ample power provided for handling 110,000,000 cubic feet daily by modern and efficiently equipped compressor plants

By A. R. McTEE
Staff Representative

TO meet its problems of overcoming low gas pressure in the fields from which it draws its supply and to assure high pressure in the main line leading into Houston, Texas, the Houston Pipe Line Company now has one booster station in operation and two others under construction. The two being built will probably be completed within 60 days, and these with the one now in service will give a combined horsepower of 8300. The throughput of the line will also be increased by about 20 per cent, giving a daily capacity of approximately 110,000,000 cubic feet.

The station now in operation is delivering gas from the Refugio field. Carolina-Texas, Cole-Bruni, and Live Oak fields will be served by the Mt. Lucas station now under construction. The Edna station, also being built, is solely for the purpose of boosting the gas along the main line to Houston. Edna is located about two thirds of the distance between the source of supply and Houston.

The Houston Pipe Line Company has not standardized on the type of station to be described here. It so happens, however, that the smaller stations are duplicates of each other except for a few pieces of minor equipment, and the Edna station is like the other two but is about three times as large. The plan of operation is the same at all three stations.

Boosted to 500 Pounds

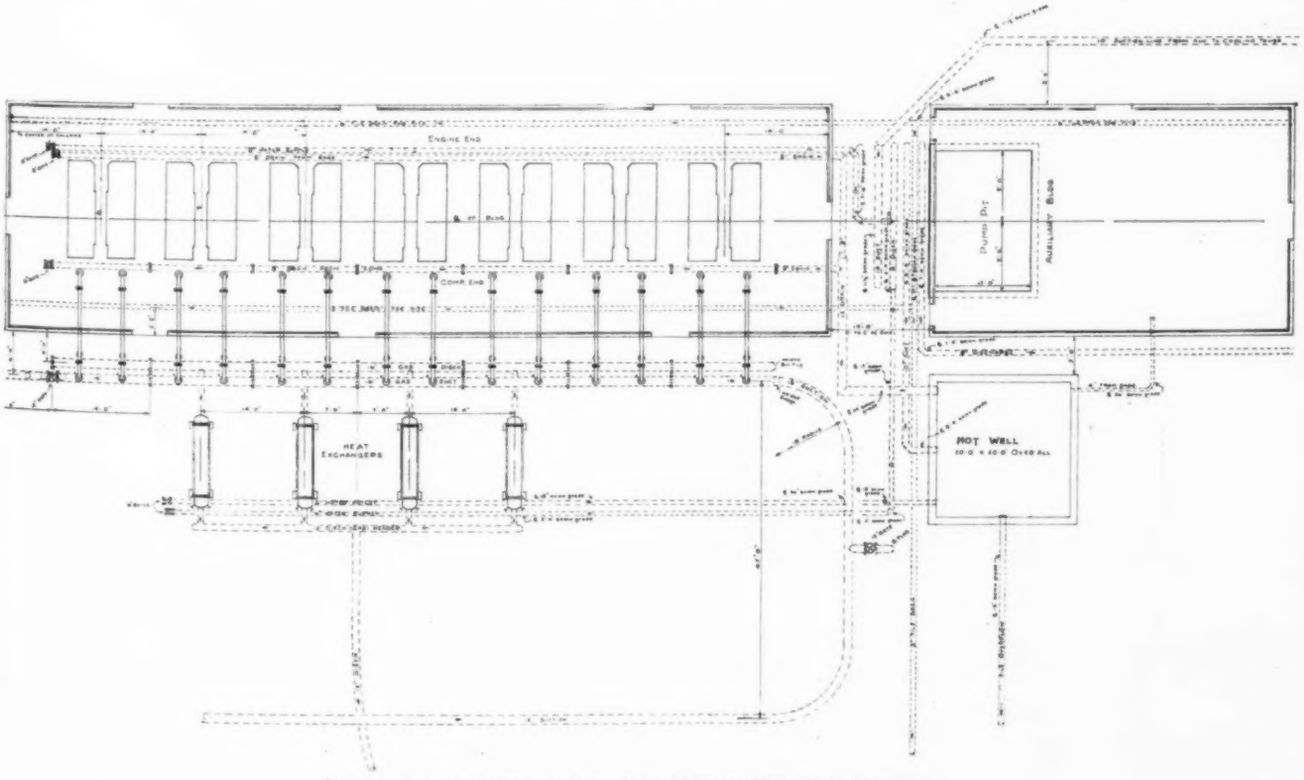
As will be seen from the accompanying lay-out of the Mt. Lucas station, gas enters the C. & G. Cooper direct connected compressors, of which there are seven, through a 12-inch suction line, at a pressure which averages 150 pounds. When the gas leaves the Braun Coolers to which it goes from the compressors, the pressure is around 500 pounds. Great care has to be taken to see that the gas is clean and free from solid particles before it enters the compressors as a few sand grains will ruin a compressor within a short time. Wyatt scrubbers installed on the suction line take out pieces of sand and other foreign matter, and insure a clean product by the time it reaches the compressor.

The main building which is 112 by 132 feet, houses the compressors. The auxiliary building immediately back of the main compressor building is 48 by 32 feet and houses the water pumps and two generators. The generators furnish current for power and lighting purposes about the station, and the pumps, La Bour centrifugals, handle the water supply.

Just beyond the auxiliary house is the water treating plant which houses Graver softening equipment used to purify the water supply. A small refrigerating plant is also installed in this house. The refrigerating plant supplies ice for the station and employees' homes.

Water for cooling the gas and for operating the engines comes from two sources, a reservoir located 600 feet north of the plant site, and also from a pit in the Nueces River, a short distance away. After going through the Graver treating system where the water is purified, it is pumped by Frederick and La Bour centrifugal pumps to the compressors and the gas coolers. It is then pumped into the "hot well," a concrete pit about 20 feet square, then to the pump pit and back to the cooling tower. Water is discharged into the top of the tower, drips through the baffles and goes into a pit underneath the tower. From the pit it is pumped to the auxiliary house and then starts its cycle again.

At the river pumping plants there are four pumps with a capacity of 50 gallons per minute. These are operated in stages,



Layout of a compressor station of the Houston Pipe Line Company

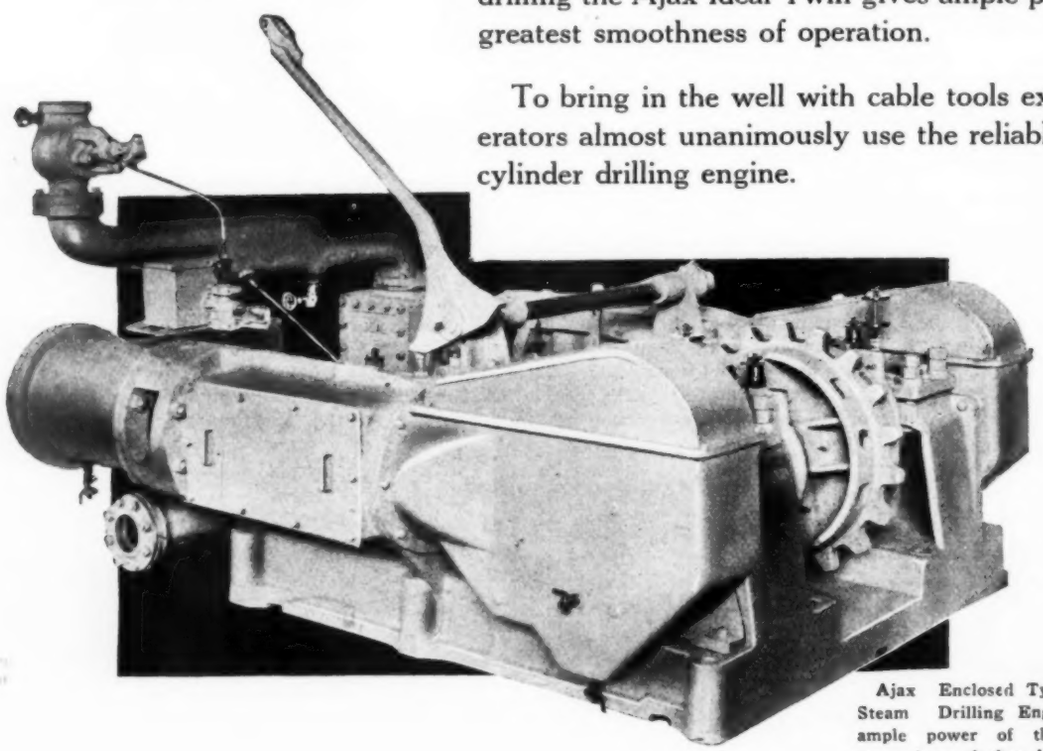
Faster Drilling

AJAX ENGINES

Faster Drilling is imperative. Not only competition the race to reach the oil sand ahead of the other fellow but also the mounting cost per day of crew and equipment, makes speed a vital necessity.

Ajax power completes the well quicker. For rotary drilling the Ajax Ideal Twin gives ample power with the greatest smoothness of operation.

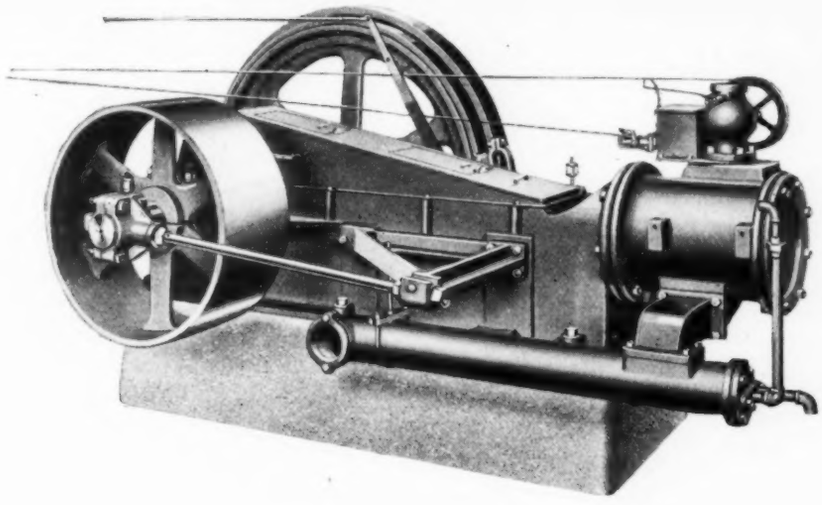
To bring in the well with cable tools experienced operators almost unanimously use the reliable Ajax single cylinder drilling engine.



Ajax Enclosed Type 13x14 Steam Drilling Engine. The ample power of this engine saves days of time in bringing in a deep well.

IDEAL DRILLING

Say you saw it in The OIL WEEKLY



The Ajax engine now has the enclosed crankcase, the counter balanced crankshaft. Its extra power permits more effective gear ratios—greater drilling speed at slower engine speed.

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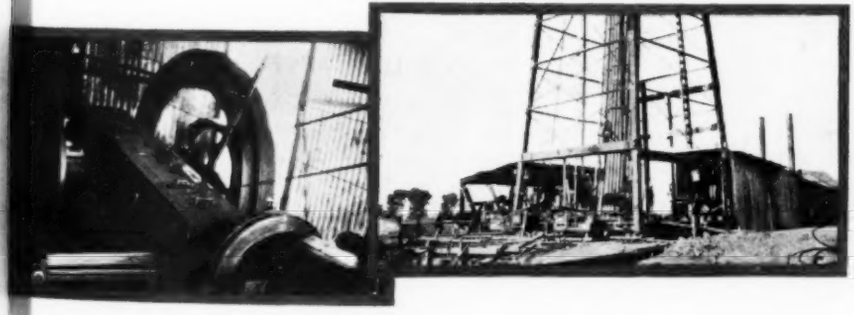
In every oil field



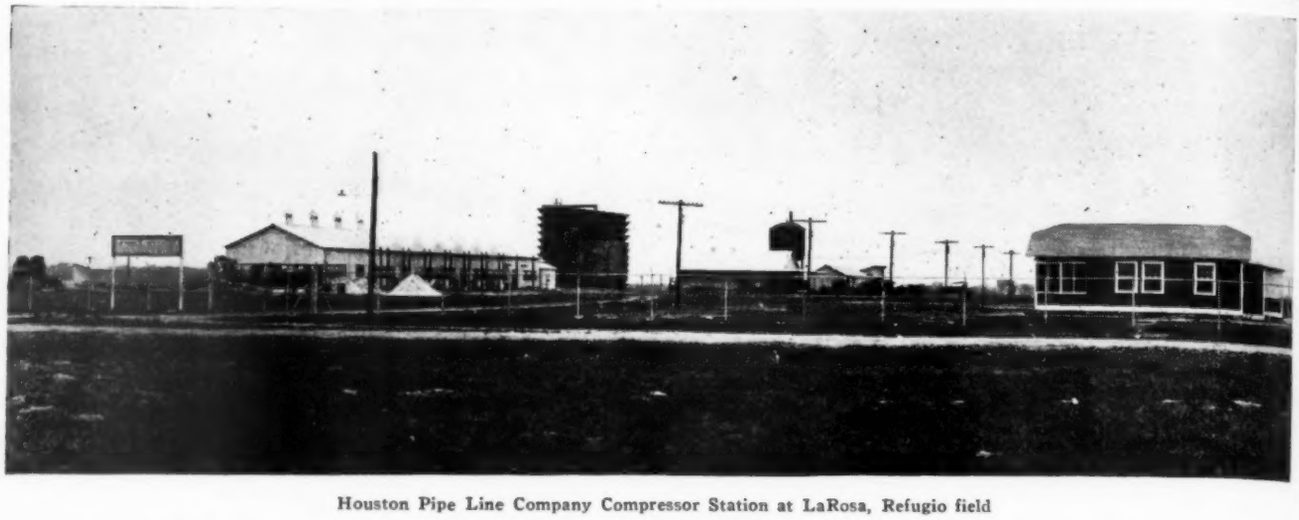
AJAX Snap Shots

Marland Oil Co. well in Hubbard Pool, 8 miles north of Tonkawa. This rig also set 4240 feet of 8¾-inch casing north of Billings. Engine, Ideal-Ajax 12x12 Twin. Contractors Prunty & Gladuex. Drilled in with Ajax (Single) 13x14 Enclosed Type.

AJAX ENGINES

34188

Say you saw it in The OIL WEEKLY



Houston Pipe Line Company Compressor Station at LaRosa, Refugio field

two of them lifting the water and the other two pumping it to the treating plant.

Water for the Edna station is to come from a river. At Refugio the supply is from a series of water wells. A storage tank assures pressure for the various buildings.

Compressor Engines

The compressors are the direct-connected type and are operated by gas engines. Approximate consumption of the seven compressors is between 350,000 and 400,000 cubic feet of gas daily.

The Refugio and Mount Lucas stations each have seven compressors of 170 horsepower each. Four Braun gas coolers are in use at each of these stations also.

When completed the Edna station will have six 1000 horsepower twin-built compressors, and seven gas coolers.

The stations are all equipped with traveling cranes and chain hoists.

All the compressor and auxiliary buildings are of steel and galvanized iron construction, on concrete foundations, furnished by the Austin Company.

Machine shops equipped to do all the repair work about the stations have been provided in order to save time and eliminate shut-downs.

At the Refugio station more than 1000 yards of concrete was poured for the foundations. Extra deep foundations have been used for compressors at all three of the stations.

Houses for employees are equipped with modern sewage facilities, electricity, and natural gas for cooking and heating purposes. They are small frame bungalows, comfortably arranged and neatly painted.

Will Pipe Natural Gas to Sheridan, Wyo.

Sheridan, Wyo.—A well-founded report circulated here confirms the recent rumors that this city will soon have natural gas from the Billy Creek field. The distance is not great and the general country is ideal for pipe line work. The line would be laid by the way of Buffalo, a town of 2000 people. The Billy Creek field is one of the largest in northern Wyoming.

Midwest - Ohio Building Wyoming Gas Line

Casper, Wyo.—Complete details covering the construction of a gas line from the Hidden Dome field to several small cities in the Big Horn basin have been announced. News of the building of the line was made public more than a week ago but details were lacking. The line will be laid jointly by the Midwest and Ohio oil interests but will be under the direct supervision of the Midwest Refining Company. The entire line will be nearly 100 miles in length but the new construction calls for only 57 miles of pipe line. Approximately 43 miles of the new line will be of 14 inch pipe while 14 miles will be of 12 inch construction. Plain end pipe will be used exclusively, as welded gas lines have not been entirely successful here where there are extreme changes in temperature. In addition to supplying several towns with natural gas, the Greybull Refinery will require more than 10,000,000 cubic feet daily when operating at close to capacity. The line will connect with the old line running from Hidden Dome to Greybull.

Start Development West Of Florence Field

Denver, Colo.—The Continental Oil Company is planning a small development campaign on a west extension of the old Flornece field and a short distance east of Canon City. By some the region is considered an independent pool but is more likely to be only an extension of the Florence field. The quality of the oil is nearly the same and the action of the wells is similar to those in the Florence district. Gas is generally found at a shallow depth and oil at close to 1000 feet. The district has not been developed enough to ascertain from what formation the oil is coming. It appears to be shale formation, however, and the depths at which production is found do not run uniformly. The Continental interests have not announced the results of the tests drilled. It is known, however, that both oil and gas have been found in small quantities. One of the first wells drilled in the district produced more than five barrels of oil from a shale formation found at 1100 feet. Better production is anticipated at greater depths.

Magnolia Line Capacity Being Increased

Dallas, Texas.—Increased crude runs by the Magnolia Pipe Line Company lately from the Greater Seminole field in Oklahoma has necessitated the building of more capacity on its trunk line system leading south to Beaumont. Twelve miles of eight-inch loop is being completed on Magnolia's trunk line system between Purcell and Duncan, and when this loop is put in service the trunk line will have a daily capacity of 32,000 barrels coming out of Oklahoma.

Cane Creek Well Having Trouble

Salt Lake City, Utah.—The Midwest Refining Company is again having trouble with its discovery well on the Cane Creek dome. A string of small casing will be run to a point below 3600 feet, where the string of tools was lodged by the action of the well. An attempt will then be made to clean out the 1300 feet of mud placed in the well to control the oil and gas flow. The total depth of the well is 4975 feet.

P. & R. Moving Offices To Independence

Denver, Colo.—The main offices of the Producers & Refiners Corporation will be moved from this city to Independence, Kansas, according to officials of the Prairie Oil & Gas Company. The Prairie controls the Producers & Refiners Corporation through a stock exchange made two years ago. A small office will be kept here to handle local and Rocky Mountain business.

United States Daily Average Production

Figures below are taken from the complete revised estimates of the AMERICAN PETROLEUM INSTITUTE except for the current week, which are advance estimates issued by the A. P. I. and are subject to revision;

Month—	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Ark.	Eastern States	Rocky Mountain	California	United States Ave.	Gross
January	449,370	100,130	260,180	90,290	43,990	181,190	101,000	102,300	621,300	1,946,980	60,356,380
February	450,037	101,937	245,989	91,550	45,090	169,676	99,000	98,412	605,250	1,909,637	53,469,836
March	454,762	103,300	260,262	92,712	48,787	164,312	97,625	102,325	604,500	1,929,562	59,816,422
April	467,175	101,825	263,612	88,812	50,562	169,824	100,875	106,675	600,000	1,947,387	58,421,610
May	463,750	105,690	277,700	94,550	58,150	175,430	105,700	112,300	602,720	1,995,990	61,875,690
June	456,450	107,637	302,187	89,912	60,412	167,887	106,250	112,925	606,925	2,013,187	60,395,610
July	456,920	110,320	336,600	114,760	57,460	161,870	104,700	108,520	613,940	2,062,470	63,936,570
August	465,137	111,600	381,550	161,237	56,787	157,375	108,350	110,737	609,725	2,162,662	67,042,522
September	465,387	113,037	402,212	175,512	56,575	154,037	110,125	105,825	598,100	2,180,862	65,425,860
October	497,120	114,720	439,490	170,350	58,200	149,810	109,500	99,060	611,600	2,259,850	70,055,350
November	551,225	115,425	475,987	176,425	56,575	144,100	111,125	93,537	641,325	2,365,475	70,964,250
December	561,012	118,950	483,050	181,263	55,137	139,250	110,375	87,650	659,925	2,396,112	71,279,472
January, 1926	591,570	117,490	466,910	176,330	53,030	132,648	108,100	83,910	655,660	2,385,650	73,955,150
February 5	637,300	115,500	472,900	159,050	53,250	127,900	107,000	83,000	646,500	2,402,400	.....
February 12	692,000	116,550	477,450	161,300	52,600	129,650	107,000	84,200	641,500	2,462,250	.....
February 19	707,850	117,050	481,800	152,500	52,500	128,950	107,500	83,800	640,000	2,472,000	.....
Increase	15,850	500	4,350	.....	.....	.....	500	.....	.....	9,750	.....
Decrease	.....	.....	.....	8,800	100	750	.....	400	1,500	.....	.....

Texas

(Outside Gulf Coast)

PANHANDLE DISTRICT

	Feb. 19	Feb. 12
Hutchinson County	114,450	116,600
Gray County	8,100	8,250
Carson County	6,550	6,600
Wheeler County	1,600	1,650
Others	50	50
Totals	130,750	133,100

NORTH TEXAS

Burkburnett	14,150	14,300
Electra	15,300	15,600
Iowa Park, K-M-A	4,900	4,950
Wilbarger	14,050	14,100
Archer County	32,100	32,950
Clay County (Petrolia)	900	900
Baylor County	150	150
Montague and Cooke Counties	13,200	13,350
Totals	94,750	96,300

WEST CENTRAL TEXAS

Stephens County	9,600	9,750
Eastland-Desdemona	5,650	5,800
Brown County	32,200	30,400
Coleman County	1,750	1,750
Callahan County	6,650	6,650
Shackelford County	13,100	13,400
Young County	8,550	8,850
Throckmorton County	4,000	4,050
Jack County	750	750
Palo Pinto County	2,700	2,700
Jones County	3,500	4,150
Mitchell-Scurry Counties	2,550	2,250
Howard County	2,250	2,300
Reagan County	27,900	27,600
Crane-Upton Counties	46,050	39,200
Crockett County	1,100	1,200
Others	4,995	2,150
Totals	173,250	162,950

EAST CENTRAL TEXAS

Mexia	11,200	11,700
Currie	750	750
Richland	1,200	1,400
Wortham	4,650	5,000
Corsicana-Powell	20,650	21,300
Nigger Creek	6,300	6,450
Totals	44,750	46,600

SOUTHWEST TEXAS

Luling	18,750	18,400
Lytton Springs	2,250	2,450
Somerset	1,500	1,700
Laredo District	15,050	15,100
Piedras Pintas	100	200
Others	650	650
Totals	38,300	38,500
Totals Texas, (Outside Gulf Coast	481,800	477,450

TEXAS GULF COAST

West Columbia	10,050	10,400
Damon Mound	1,050	1,050
Big Creek	2,800	2,600
Boling	1,800	2,100
Blue Ridge	1,600	1,600
Pierce Junction	7,400	6,950
Humble	4,200	4,300
Goose Creek	7,250	8,050
South Liberty	3,700	4,450
Hull	17,150	16,900
Saratoga	1,250	1,250
Batson	1,750	1,650
Sour Lake	5,200	5,150
Spindle Top	66,900	74,400
Orange County	5,100	5,200
Others	3,600	3,650
Totals	140,750	149,700

Oklahoma

North Braman	9,100	8,900
South Braman	4,450	4,600
Blackwell	4,000	4,000
Hubbard	5,750	6,300
Thomas	1,750	1,700
Garber	26,700	18,700
Tonkawa	18,850	26,050
Burbank	49,750	49,200
Osage (outside Burbank)	35,100	35,100
Watchorn	2,700	2,700
Cushing	21,200	21,200
Yale, Jennings	12,250	12,250
Davenport	4,000	4,050
Bristow Slick	27,300	27,300
North Okmulgee	16,900	16,900
Lyons Deaner	4,500	4,500
Stroud	1,600	1,650
Cromwell	13,750	13,000
Papoose	8,200	8,050
Wewoka	18,400	20,150
Duncan District	6,850	6,800
Earlsboro	19,150	17,000
Graham	8,950	8,950
Fox	1,900	1,900
Healdton	15,000	15,000
Seminole	282,600	268,400
Hewitt	10,400	10,400
Scholem Alechem	14,200	14,250
Others	62,550	62,300
Totals	707,850	692,000

California

Seal Beach	14,500	14,000
Santa Fe Springs	45,500	45,500
Long Beach	91,000	92,000
Huntington Beach	82,500	84,500
Torrance	25,000	25,000
Dominguez	18,500	18,000
Rosecrans	11,500	12,000
Inglewood	38,500	38,000
Midway-Sunset	90,500	90,500
Ventura Avenue	51,000	50,000
Others	171,500	172,000
Totals	640,000	641,500

Kansas

Florence-Covert	1,900	1,900
Peabody-Ebling	3,850	3,850
Eldorado-Towanda	13,200	13,200
Augusta-Fox Bush	4,650	4,650
Rainbow Bend	2,800	2,850
Russell	3,450	3,500
Greenwood County	42,100	42,900
Churchill	15,500	14,000
Others	29,600	29,700
Totals	117,050	116,550

North Louisiana

	Feb. 19	Feb. 12
Homer	5,350	5,350
Haynesville	8,200	8,200
Caddo Light	10,050	9,900
Caddo Heavy	4,350	4,150
De Soto-Red River	3,950	4,000
Elm Grove	750	650
Bellevue	1,500	1,550
Cotton Valley	6,100	6,100
Urania	12,250	12,700
Totals	52,500	52,600

LOUISIANA GULF COAST

Vinton	5,600	5,700
Lockport	3,300	3,200
Evangeline	1,200	1,200
Edgerly	1,050	900
Others	600	600
Totals	11,750	11,600
Totals Gulf Coast	152,500	161,300

Arkansas

El Dorado	6,050	6,100
Smackover Light	12,300	12,200
Smackover Heavy	102,100	102,550
Stephens	1,450	1,500
Nevada	1,800	1,850
Lisbon	5,050	5,200
Others	200	250
Totals	128,950	129,650

Mountain States

WYOMING

Salt Creek	41,450	43,250
Grass Creek	2,850	2,850
Elk Basin	900	950
Big Muddy	2,850	2,750
Lost Soldier	3,600	3,600
Rock River	3,050	2,950
Teapot Dome	1,050	900
Lance Creek	750	750
Others	1,700	1,500
Totals	58,200	59,500

MONTANA

Cat Creek	2,400	2,400
Sunburst	11,000	10,000
Others	200	200
Totals	13,600	12,600

COLORADO

Moffats (Craig)	2,650	2,650
Fort Collins	3,950	4,000
Florence	500	500
Others	450	500
Totals	7,550	7,650

NEW MEXICO

Table Mesa	100	100
Artesia	2,000	2,000
Hogback	850	850
Rattlesnake	1,500	1,500
Totals	4,450	4,450
Totals Mountain States	83,800	84,200

Eastern States

(Including Ill., Ind., Ohio, W. Va., Pa., Ky., and N. Y.)	107,500	107,000

PRODUCTION SUMMARY

East of Rockies	1,748,200	1,736,550
United States	2,472,000	2,462,250

Gulf Coast Twice As Active Now As Year Ago

However total number of operations is not as great as last fall; many wildcat tests in Southern Louisiana

By WALLACE DAVIS
Staff Representative

FIELD operations in the Texas and Louisiana Gulf Coast region on February 1, including drilling wells and rigs up and being assembled, totaled 254. While this activity registers an increase of approximately 100 per cent over the same date of 1926, it is a decided decrease when compared with the middle fall of 1926. During October and November of 1926 drilling activity in the Coastal territory reached a peak for the past several years with the three fields, Spindle Top, Sour Lake and Pierce Junction, running under semi-boom development.

At the beginning of February, 1927, the accompanying table of drilling operations shows only 36 active locations in the deep sand area of Spindle Top, whereas the total reached 46 at the height of the deep sand boom in the fall of 1926. These figures compare with three active operations at Spindle Top at the beginning of February, 1926.

Drilling operations on February 1, 1927, have been greatly increased as a result of the wide wildcat campaign now under way in Southern Louisiana following the various discoveries in that section within the past six months. Out of the 63 active locations in the Louisiana Coast at the beginning of this month, 26 were rank wildcat tests. Furthermore, 14 of the remaining operations are in newly opened areas or arcund a proven dome where production in commercial quantities has not been obtained. As an example of the last is activity at Hackberry Island, now the scene of six operations. It may be conservatively stated that present wildcatting in Coastal Louisiana more than doubles that of this time in 1925.

Wildcatting in the Texas Gulf Coast at the beginning of this month represented a quieted campaign, with about one-half of the rank wildcatting going on as compared with the same date one year ago. On the other hand wildcatting around proven domes was running slightly higher than this time last year. The status of rank wildcatting by independents in the Teras Coast at the opening of this month showed many shutdowns, which because of the fact that they have been idle for some time, are not included in the number in the accompanying table.

The miscellaneous column in the table below is estimated to include approximately 45 companies or individual operators, which at the beginning of the month were drilling 74 wells, 30 of which were running in the Louisiana Coast.

Among the operating companies in the Coastal territory at the beginning of February, 1927, the Gulf, including Gulf Production Company in Texas and Gulf Refining Company in Louisiana, led any other operator by almost 200 per cent with 61 active operations. Gulf's operations were well distributed over the Coastal area and represented 21 of the 34 fields and domes listed. Yount-Lee Oil Company stood second among Coastal operators with 21 wells drilling, 19 of which were at Spindle Top. The Texas Company, Humble and Vacuum Oil Company held the next three important places with 13, 12 and 10 operations respectively. While the two former companies had operations well distributed, the Vacuum activity included nine wells at Lockport, Louisiana.

Field Operations In Salt Dome Territory on February 1, 1927, Including Drilling Wells and Rigs

	TEXAS																												LOUISIANA								
Company—	Barbers Hill	Batson	Big Creek	Blue Ridge	Boling	†Brazoria Co.	Fannett	Goose Creek	Hawkinsville	High Island	Hull	Humble	Long Point	Markham	Nash Dome	Orange	Orchard Dome	Pierce Jct.	Piedras Pintas	Saratoga	Sour Lake	So. Dayton	So. Liberty	Spindle Top	W. Columbia	‡Wildcats	Eagle Point	Edgerly	Evangeline	Hackberry	Lockport	Starks Dome	Sweet Lake	Vinton	Wildcats	Totals
Gulf	..	2	6	6	1	1	1	3	3	2	8	1	4	..	..	1	2	3	..	..	3	5	..	4	1	..	2	..	..	..	..	2	..	..	..	61
Humble	..	..	..	..	..	..	..	5	..	..	..	..	..	..	..	1	..	..	2	..	..	1	..	..	..	3	..	..	..	..	..	..	..	..	..	..	12
The Texas Co.	..	1	1	..	2	..	..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..	1	..	1	1	..	..	..	1	..	..	..	..	1	13
Yount-Lee	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	19	..	..	..	..	..	1	..	..	..	..	..	21
Union Sulphur Co.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	..	4	..	..	..	2	..	9
Roxana	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
Rycade	..	..	..	..	..	..	..	..	..	..	..	..	..	2	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	7
Rio Bravo	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	7
Vacuum	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	..	..	..	..	10
Atlantic	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	3
Sun Company	..	..	..	..	1	..	..	..	..	3	..	1	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	7
Abercrombie Drilling Co.	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
Marland	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Pure Oil Co.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2
Navarro	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Republic	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
Associated	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	3
Sinclair	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Humphreys	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Mills Bennett	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Kirby Pet. Co.	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Border Research Corp.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	6
Miscellaneous *	..	..	..	..	4	..	..	4	1	..	2	..	..	1	..	4	..	3	1	1	5	..	1	8	..	9	..	2	4	1	..	..	..	7	16	74
Totals	2	4	7	11	9	8	1	12	4	5	15	5	4	3	3	8	2	12	4	2	9	7	2	36	2	10	4	2	5	6	9	2	2	7	26	254

†Includes Stratton Ridge, Allen Dome and Clemens Dome. ‡Includes Brenham and Palangana domes. *includes small companies and individual operators.

North Louisiana Reports Many Gas Wells and Blow-outs; Sabine Producer Holding Up

Shreveport, La.—Gas wells and gas blow-outs are becoming so common in the Louisiana-Arkansas territory that such occurrences are losing their news value. Lochnager and Associates suffered a blow-out last week in their Beazley wildcat, in section 26-9n-5e, of Catahoula Parish. The blow-out occurred while the drill stem was being removed from the hole, after the bit had penetrated a cap rock at 3093 feet. It blew for about an hour before it went dead.

The Palmer Corporation's Colvin well, in section 33-17-6e, of the new gas field in Richland Parish, which recently showed around five million cubic feet of gas at around 2374 feet, has been drilled 58 feet deeper, and another test is to be made at 2432 feet. The Binion well, drilled by Bill Hall and others of the Louisiana Petroleum Corporation, threatened to blow-out yesterday from a depth of 2407 feet. However, the well was brought under control, and preparations were being made today to set liner and to bail it in. Sam Hunter is drilling at 2385 feet in his Seibert well, in section 1-16-5e. Eight-inch casing has been set at around 900 feet in his McCoy well, in section 29, of the same township. The Stovall Drilling Company and the Standard Drilling Company are rigging up on the Mitchell land, in section 20-17-6e, and on property owned by the Delta Company, in section 22-16-7e, respectively.

The Gulf Refining Company suffered a blow-out several days ago at a depth of only 500 feet in its Swope A-3, in section 8-9-1e, Grant Parish, south of the Urania field. It blew for 30 minutes before it bridged over and went dead. The Gulf Company's Swope No. 2, in section 17 of the same township, came in yesterday with a gusher flow, but it lasted only about one hour before salt water broke in, after which it went dead. It is logged as 1603 feet deep.

The Arkansas Fuel Oil Company's discovery well, near Pleasant Hill, in Sabine Parish, is holding up remarkably well, as recent gauges show that it is still making more than 310 barrels per day, every day. The Arkansas company is rigging up on Logan wells 2, 3 and 5, and a derrick has been built for Logan 4, in sections 28 and 33, of township 10-12. Greer & Moffett have made a location on the Moore property, in section 5-9-12, of the same parish.

Woodley & Collins made a test of the Blossom sand last week in their L. & A. No. 2, in section 14-23-12, of the Plain Dealing area, in Bossier Parish. Erle P. Halliburton's patened packer was used, being set at a depth of 2685 feet. The test yielded principally salt water, with a little oil on top. Drilling has been resumed. Bahan and others, in connection with the Amerada Petroleum Corporation, are drilling at around 2250 feet in their Gray well, in section 27-23-12; and the Bethany Oil & Gas Company (Southwestern) has started drilling in its Dodson well, in section 16.

Reports from Arkansas state that J. E. Crosby is drilling at 3985 feet in his Berry deep test, in section 33-15-15, of the Louann district, in Ouachita County.

The Louisiana Oil Refining Corporation, Lion Oil & Refining Company, Keen & Woolf, Ohio Oil Company, Natural Gas & Fuel Corporation, and O. G. Murphy have started a little boom in sections 8 and 9, of township 16-15 of the Smackover field, where some very good wells have been completed recently in the fourth sand. All of these companies are rigging up to deepen shallow wells, indeed the Lion company is deepening three wells.

The Simms Oil Company is rigging up to pump its Ballard well, in section 9-18-13 of the Urbana-Lawson area in Union County. It is standing with 2000 feet of fluid in the hole, of which about 500 feet is oil. It was drilled to 2556 feet, after having been bailed dry at 2546 feet. The Marine Oil Company's Winn well, in section 11-18-13, was re-opened last week, but it made only gas, showing at the rate of around 25,000,000 cubic feet per day.

Oklahoma Oil Producers Win Tax Fight

Oklahoma City.—When brought to the floor of the House of Representatives the measure to raise the gross production tax on crude oil in Oklahoma from three cents to five cents a barrel met defeat that was more crushing than opponents of the measure had anticipated.

The bill came from the committee room carrying two recommendations: one that it be printed and placed on the calendar; the other that it be killed. It met defeat by a vote of 64 to 37.

The Oklahoma oil industry carried its fight into the committee room and then to the floor of the House. Reasons for defeat of the measure consisted largely of presenting arguments to the effect that the oil industry in Oklahoma is now carrying its full share of the tax burden and that further increases would be unfair to a major industry.

Apparently this found fertile soil, since the whole fight was centered on this line of pleading against the measure.

This is the second defeat of efforts to raise the gross production tax on crude oil in Oklahoma this year. An initiative petition was defeated at the last election. This petition would have resulted in higher taxes on oil, had it been adopted.

Two Lease Deals Made at Kevin-Sunburst

Great Falls, Mont.—Two deals of considerable importance were recorded in the Kevin-Sunburst field during the past week. These were the first exchanges of major importance since last fall.

W. E. Rice, formerly the largest independent operator in the field, acquired 320 acres of producing property from Boris A. Aronow for consideration not made public. The lease includes the entire east half of section 29-35-1w, a strictly proven area with eight wells now on production. None of the wells on the lease could be classed as spectacular, but all are producing consistently. The tract lies near the Flickertail extension. Mr. Rice has not announced a drilling program for the year. He recently sold the greater part of his holdings in the field to the Julian Petroleum company for approximately $3,000,000.

L. B. O'Neil, who also recently sold his major holdings in the Kevin-Sunburst field, acquired more than 1000 acres of semi-proven leases along the edge of the main pool. Approximately 550 acres of the land lies in or near section 22-35-3w, 160 acres in section 4-35-2w and 320 acres in section 4-34-1w. Two or three wells have been drilled on the various tracts and none could have been called dry. One test yielded commercial gas but failed to produce in the main oil sand. One well produced about 10 barrels of oil daily. Mr. O'Neal plans to develop the holding during the year but has not announced upon which tracts he will drill or the number of tests to be made.

Small Show in Test Near Baker, Montana

Great Falls, Mont.—Authentic reports from the Bull Dog Oil & Gas Company's well near Baker, Montana, state that while a small quantity of oil was found in the test, it is not even anticipated that commercial production will be found in the present formation. The well is now bottomed at 1210 feet. A first hole started encountered a large flow of gas at 635 feet. The rig was moved to a new location, however. A gas sand was found in the present test at 775 feet.

COMPLETIONS FOR PAST WEEK IN U.S. FIELDS

Summarized Review of Field Results

State—	Completions This Week	Completions Last Week	Producers This Week	Producers Last Week	Gas Wells This Week	Gas Wells Last Week	Failures This Week	Failures Last Week	Initial Production This Week	Initial Production Last Week
Arkansas	14	3	6	2	..	..	8	1	388	255
California	21	14	20	13	..	..	1	1	8,084	4,991
Colorado	..	..	..	..	..	..	..	..	....	.....
Indiana	4	..	2	..	..	..	2	..	10	.....
Illinois	4	..	4	..	..	..	..	..	209	.....
Kansas	34	28	16	13	1	2	17	13	2,405	1,855
Kentucky	15	31	13	24	..	1	2	6	276	1,031
Louisiana	16	22	3	13	3	4	10	5	330	3,459
Michigan	5	5	5	3	..	..	..	2	82	45
Mississippi	..	..	..	..	..	..	..	..	....	.....
Montana	2	..	2	..	..	..	..	..	60	.....
New York	8	38	8	15	..	17	..	6	60	142
New Mexico	1	2	1	2	..	..	..	..	30	1100
Ohio	31	35	15	21	11	10	5	4	536	558
Oklahoma	113	87	71	46	5	10	37	31	37,175	35,586
Pennsylvania	65	59	54	48	9	8	2	3	155	199
Tennessee	..	..	..	..	..	..	..	..	....	.....
Texas	205	145	114	91	16	..	65	54	34,876	22,054
West Virginia	21	..	1	..	18	..	2	..	5	.....
Wyoming	3	2	..	2	1	..	2	..	....	2,250
Totals	552	471	335	293	64	52	153	126	84,648	73,525
Increase this week	81	..	42	..	8	..	27	..	11,123	.....
Decrease this week	..	..	..	..	..	..	..	..	....	.....

Kansas

Company, Well and Location	Initial Production Bbls.	Depth
Butler County—		
Lackawana Oil & Gas Co., No. 1 Dillenbeck, c S½ SE SE 35-25-4	125	2417
Safford et al, No. 9 Safford, NEc SE NE SE 26-27-4	30	2532
Mid-Kansas O & G Co., No. 5 Blackman, SWc SE SW 3-28-6	55	3036
Magnolia Pet. Co., No. 1 Blackman, NEc SE SE 4-28-6	20	3076
Sheldon et al, No. 1 Robbins, NWc 21-25-8	*	2733
Phillips Pet Co., No. 1 League, SWc SE SW 8-27-6	*	3161
Chase County—		
Preston & Pasewalk, No. 3 Lipps, c NE SE 30-18-7	¶2½	1200
Cowley County—		
Doric Oil Co., No. 1 Smith, NWc SE NW 18-33-7	10	2732
Branson et al, No. 1 White, SEc SW SW 7-30-6	*	2925
Miss. Valley Oil Co., No. 1 Stewart, SEc SW 6-32-3	*	3503
T. B. Slick, No. 2 Carson, NWc SW NW 20-32-3	*	2700
Elk County—		
Pure Oil Co., No. 15 Chaffine, SWc NW SE 14-31-10	1000	1644
No. 16 Chaffine, SWc NW NW SE 14-31-10	325	1648
Kansas Central Oil Co., No. 3 Stiles c NW NE 21-31-9	*	1504
Greenwood County—		
Superior Oil Co., No. 9 Browning, c SE NE 19-22-10	75	2340
Simmons et al, No. 1 Clopton, NWc NE NW 18-22-11	25	2117
Darby et al, No. 1 Boles NWc SW 10-22-12	125	1821
Roth Faurot et al, No. 1 Laird, SWc NW 10-23-10	15	2012
Empire G & F Co., No. 3 Edwards NWc NE NW 21-23-11	350	1960
Simmons et al, No. 5 Ellis, SEc NW SW 26-23-11	175	1908
Haverhill Pet. Co., No. 16 Inthrum SEc NW SE SE 4-23-13	40	1614
O'Neil et al, No. 1 Derbyshire, NEc SW NW 17-22-11	*	....
Simmons & Rhodes, No. 1 Blank, NEc NW NW 33-22-13	*	1909
Roth, Faurot et al, No. 2 Race, c S½ S½ NW 19-23-10	*	2325
Marland Oil Co., No. 3 Edwards, NEc SE NW 19-23-10	*	2087
International Oil Co., No. 1 Edwards, SEc SW NW 7-26-10	*	2531
Lyon County—		
Transcontinental Oil Co., No. 9 Atyeo "A" NWc 31-21-10	35	2202
Coffey County—		
Nathan et al, No. 1 Underwood, NWc NE 3-22-14	*	....
Edwards County—		
Edwards County Pet. Co., No. 1 Norbersall, NEc SE SE 7-23-19	*	4653
Marion County—		
Nicolls et al, No. 1 Propp, c NE SE 32-18-4	*	2682
Propp et al, No. 1 Propp, NEc SE NW 20-19-4	*	2696
Sheedy et al, No. 1 Allison, SWc NW SE 13-21-4	*	2362
Sumner County—		
Phil-Mac Oil Co., No. 1 Maurice, SWc SE 23-30-2	*	3744

Oklahoma

Company, Well and Location	Initial Production Bbls.	Depth
Carter County—		
Gypsey Oil Co., No. 4 Liles, NE SW NE 3-2-3	145	2540
J. B. Schermerhorn, No. 1 Vaughn, SWc NW 2-2-3	50	3308
Humble O & R Co., No. 2 Calvery, NW SW SW 2-2-3	125	2593
Westheimer, No. 1 Dixon, SW NW SW 18-1-3	1230	2750
Magnolia Pet. Co., No. 3 Hardon, SEc SW 18-1-3	85	2825
Humble O & R Co., No. 7 Jordan, SE SW SW 18-1-3	1145	2631
Mid-Continent Pet. Corp., No. 3 Reynolds, SE NE SW 3-2-3	*	....
Creek County—		
Sunray Oil Corp., No. 1, Townlot Lot 34, block 9 6-18-12	25	2217
Sunray Oil Corp., No. 13 Sango, SEc NE SE NW 6-18-12	75	2019
O. M. Ireland, No. 3 Harry, SWc NE 16-17-11	20	1827
Sumberland Pet. Co., No. 2 Meyers, NWc SW SW 18-17-11	35	1876
W. Hammon, No. 1-a Marshall, SWc NE SW 21-15-12	¶4	2217
Sorenson et al, No. 1 Harry, NWc NE 9-k7-11	20	1752
Savoy Oil Co., No. 1 Townlot Lot 19, block 17, 6-18-12	2860	2273
No. 1 Townlot, lot 35, block 9	100	2276
C. C. Taylor et al, No. 1 Goat, SWc NE 31-18-11	15	1400
Riverland Oil Co., No. 8 Land, SEc SW NW 1-18-11	80	2059
Gypsey Oil Co., No. 8 Land, SWc SE NW 1-18-11	25	2097
Ed Lee et al, No. 1 Harrison, c W L NE NW 2-19-9	25	1236
Alvard & West, No. 3 Freeman, c E L NE SW 14-17-8	105	3294
Magnolia Pet. Co., No. 24 Tull, SE NE NW NW 17-18-7	200	2440
No. 1 Jones, SW NE SW 5-18-7	5	2516
Whitten & Wilcox O & G Co., No. 3 Wrightsman, SWc SE NW 11-17 10	*	2176
Buckholtz et al, No. 1 Frank, NWc NE SW 27-15-10	*	3200
Plymoth Pet Co., No. 1 Green, SWc SE NE 28-15-10	*	3224
Riverland Oil Co., No. 1 Tahladge SWc NE SW 3-18-11	*	2487
Magnolia Pet. Co., No. 2 Sarhilla, NWc SW NW 26-17-8	*	3785
J. B. Grieves et al, No. 2 Grayson, SWc NW NE 24-19-8	*	3420
Gled Oil Co., No. 7 Ross, SE NE SW 13-19-8	*	3057
Grady County—		
Carter Oil Co., No. 2 Graham, NWc NE 2-2-5	32	1487
No. 4 White-Eagle-Polson, NEc NW SW 27-3-5	50	1908
No. 1 Pounds, SE NW SE 27-3-5	30	1437
No. 3 Miller, SE SW SW 22-3-5	100	1794
No 1 Woods, SE NE NE 17-3-5	¶31	1930
Ray & Cox, No. 1 Gibson, SWc SE NW 16-3-5	70	1753
Hamon and Cox, No. 3 Smith, NE SW NW 16-3-5	90	1810
Frates et al, No. 1 Brooks, SEc 36-4-6	¶3	1806
Briscoe & Hall, No. 2 Hedlund, SWc SE SE 2-5-9	60	2423

Company, Well and Location	Initial Production Bbls.	Depth
Badgett & Hughes No. 1 Hull, SEc NW SW 15-5-7-	*	2300
Briscoe & Hall, No. 1 Carmichael, SW NE NW 35-3-5	*	....
Peters et al, No. 1 Stewart, NEc SE 18-5-8	*	....
Bay Pet. Co., No. 1 Wade, SWc NW NE 16-3-5	*	2490
Kay County—		
The Texas Co., No. 1 Burkholder, SW NW 9-27-1	110	3443
Wentz Oil Corp., No. 2 Adrews, NWc NE NW NE 8-28-1	220	3560
Braman Oil Co., No. 1 Townsite, SEc SW NE SW 5-28-1	82	2780
Vernon O & G Co., No. 5 Brokhouser, NWc SW SE 17-29-1	140	2335
The Texas Co., No. 2 Day, SW SE NE 20-29-1	*	2860
Muskogee County—		
J. S. Givens et al, No. 6 Roberts, c NE SE 6-14-18	30	1296
J. M. Foltz et al, No. 1-a Meagher, NEc SW 32-15-18	*	1925
Herbert Oil Co., No. 1 Lowther, SWc 17-13-19	*	1503
Okfuskee County—		
Josey Oil Co., No. 17 McCoy, c S L SW NW 33-12-11	350	3630
Independent O & G Co., No. 2 Jacobs, NWc SW NE 22-12-11 . . .	¶6	2485
Cromwell O & G Co., No. 1 Rogers, c W L SW 8-12-7	30	2814
Okmulgee County—		
Moffett et al, No. 7 Hawkins, c S L SW SE 6-11-12	15	2350
Gladys Belle Oil Co., No. 6 Mitchell c SW NW 6-12-12	¶12	2445
M. S. Mussekkemen, No. 5 Rentie, c E L NE NW 19-14-15	40	1300
W. B. Pine, No. 4 Corbraym, NW NE NE 9-15-14	10	1554
Sam Bright, No. 10 Stake, c W L SE NW 25-13-14	*	1959
Red Bank Oil Co., No. 1 Bruner, SEc NE SW 20-16-12	*	2792
Kirshner & Tillman, NEc SE 21-16-14	*	2190
Osage County—		
F. A. Gillespie, No. 10, c E L NE 5-20-12	30	1379
Continental Oil Co., No. 18, SWc NW 28-29-12	5	1212
Phillips Pet. Co., No. 7, NW SE NW 7-27-6	800	2994
No. 3, SW SE SE 1-27-5	80	2968
Galt Brown No. 1, SEc NW 20-26-6	15	2990
Marland Oil Co., No. 3, SEc NE NW 3-26-6	15	2815
The Texas Co., No. 1, NEc NE 3-27-5	20	2986
Kewanee O & G Co., No. 1, SW SE SW 34-27-6	30	2804
Laurel O & G Co., No. 1, SWc SE 27-28-6	*	3250
Pawnee County—		
Ora Steen et al, No. 1-a, Clark, SEc SW SW 9-20-7	20	2772
Minnehoma O & G Co., No. 6 McIntyre, c S L SW SW 13-21-7 . .	400	2701
Devonian Oil Co., No. 1-a Dobson, NEc SW 35-22-6	20	2683
Arkansas Natural Gas Co., No. 2 Canfield, SWc NW NE 21-22-7 . .	20	3045
Wasson & West, No. 1 Conner, SEc NE 19-21-7	*	3050
Arkansas Natural Gas Co., No. 1 Atkins, SEc SW NW 14-22-7	*	....
Superior Oil Corp., No. 2 Gillespie, c SE NE 9-20-7	*	2629
McNamara et al, No. 1 Furry, NEc SE SE 22-20-8	*	3199
Seminole County—		
Magnolia Pet. Co., No. 2 Simpson, SE NW SE 10-9-5	520	3567
Amerada Pet. Corp., No. 2 Anderson, SW NW NW 15-9-5	9320	4272
Carter Oil Co., No. 2 Killing, SEc SW 14-9-6	3395	4040
No. 4 Grisso, SE NE SW 23-9-6	150	4345
Independent O & G Co., No. 2 Fixico, SE SW SW 23-9-6	50	4162
I. T. I. O. Co., No. 4 Harjo, NEc SE SE 23-9-6	300	4126
Gypsy Oil Co., No. 6 Carter, SE NW NW 24-9-6	100	4163
Mid-Continent Pet. Corp., No. 4 Tayoche, SEc SW 24-9-6	415	4174
No. 5 Tayoche, NE SE SW 24-9-6	200	4120
Independent O & G Co., et al, No. 7 Fixico, SEc NE 26-9-6	350	4238
Sinclair O & G Co., No. 2 Cudjo, SW NE NW 35-9-6	3420	4007
Carter Oil Co., No. 1 Cudjo, NWc SW 35-9-6	2185	4132
Sinclair O & G Co., No. 2 Cudjo "B" NWc NE NW NW 35-9-6 . .	265	4045
No. 4 Cudjo "B" SWc SE SW NW 35-9-6	1090	4068
T. B. Slick, No. 7 Franks, NE SW NE 35-9-6	2000	4120
Turman Oil Co., No. 1 Cudjo, SWc NW 35-9-6	450	4123
No. 3 Cudjo, NW SW NW 35-9-6 .	3301	4082
Sinclair O. & G. Co., No. 1 Jack Warriro, NWc 17-9-7	80	3465
Carter et al, No. 1 Street, SE NE NW 30-7-8	*	4319
Mid-Continent et al, No. 2 Sully, SEc SW 7-9-8	*	4403
McCulloch Oil Co., et al No. 1 Wisner, NE NW NW 18-9-6	*	4342
Magnolia Pet. Co., No. 1 Knight, NE SE NW 28-8-7	*	4250
Pontotoc County—		
Homaokla Oil Co., No. 1 Gilmern, NW SW SW 16-5-8	135	2511
Stephens County—		
Gamble et al, No. 1 Massey, SEc SW SE SE 25-1-9	125	2175
Margay Oil Corp., No. 4 Lane, NWc SW SW 7-1-8	*	2760
Ellis Drlg. Co., No. 7 Bridenthal, c S L SE SE 19-1-8	*	2262
Tulsa County—		
Tidal Oil Co., No. 1 Brown, NWc SE 12-16-13	10	1521
McCarthy et al, No. 1 Woodward, NEc SW NW 15-19-13	*	2015
Wagoner County—		
Severada Oil Co., No. 4 McIntosh, SWc NW NW SE 25-17-16	30	1310
Roy Starr, No. 1 Marshall, CWc SE 3-16-14	*	2411
Geo. Simpson, No. 1 Webber, SEc 11-19-16	*	520
W. E. Hills, NWc 18-19-17	*	572
H. G. Cooper, No. 1 Bird, 4-18-16 . .	*	1145
Kanola Oil Co., No. 11 Colbert, NEc SW SW 4-16-15	*	1137
Coal County—		
C. J. Shirvin, NWc SE 34-2-9	*	2240

Louisiana

Company, Well and Location	Initial Production Bbls.	Depth
Caddo Parish—		
Gulf Ref. Co.'s Ferry Lake 263, 28-20-16	130	2241
Unity Pet. Co.'s Thigpen-Herold 1, 10-21-16, ...	*	2158
Total, 2 wells	130	
DeSoto Parish—		
A. F. Tarver's Mathews B-2, 32-12-11	¶5	2679
Monroe Gas Field, Ouachita Parish—		
J. M. Huber's Edwards 3, 1-18-4e . .	¶5	2217
United O & G Co.'s Guthrie 3, 50-20-4e	¶46	2143
Total, 2 wells	¶51	
Cotton Valley Field, Webster Parish—		
Magnolia Pet. Co.'s Turner 4-B, 21-10	*	2593
19-10-1w	*	2593
Urania Field, Winn Parish—		
Humble O & R Co.'s L. & A. A-18, 19-10-1w	*	1505

SOUTH LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
Vinton—		
Gulf Refining Company of Louisiana No. 32 Vincent (wo)	100	2275
Vinton Petroleum Company No. 18 Vincent	*	3000
No. 37 Gray (wo)	100	2400
Evangeline—		
Coastal Oil and Fuel Corporation No. 93 Crowley Fee	*	1800

Arkansas

Company, Well and Location	Initial Production Bbls.	Depth
Irma Field, Nevada County—		
Humble O. & R. Co.'s Atkins 1, 9-14-21	*	1244
Stephens Field, Ouachita County—		
Reynolds et al's Davis A-1, 22-15-19	*	2178
Smackover Field, Ouchita County—		
Magnolia Pet. Co.'s LaGrone 7, 36-15-17	5	2285
Roxana Pet. Corp.'s J. E. Murphy 5, 28-15-15	45	2473
Totals, ...	50	
Smackover Field, Union County—		
F. A. Brook's McDonald 1, 1-16-16	*	1927
Lion O. & R. Co.'s Lawton A-10, 10-16-15	250	2386
Natural Gas & Fuel Corp.'s Harrell E-4, 17-16-15	*	2624
Total, 5 wells	300	
Lisbon Field, Union County—		
Clark & Greer's LeCroy 1, 7-18-15,	8	2185
Humble O. & R. Co.'s Goodwin 5, 20-17-16	15	2205
Ohio Oil Co.'s Patterson Mitchell 1, 20-17-16	15	2189
Total, 3 wells	38	

Mountain States

WYOMING

Company, Well and Location	Initial Production Bbls.	Depth
Rock Creek—		
Prairie Dog Oil & Gas Co., No. 1, SW¼ 12-19178	*	....
Wertz—		
Producers & Refiners Corp., No. 5, 7-26-89, ...	*	3600
Pine Mountain—		
John Cheney Syn., No. 2, SW¼ 12-34-64	*	2700

NEW MEXICO

Company, Well and Location	Initial Production Bbls.	Depth
Eddy County—		
Empire Gas & Fuel Co., No. 2A, 2-18-27, ...	30	1601

MONTANA

Company, Well and Location	Initial Production Bbls.	Depth
Kevin-Sunburst—		
Diamond Oil Co., No. 9, NE¼ 32-35-2	35	1470
L. W. Hill No. 11, SW¼ 22-35-2	25	1450

California

Company, Well and Location	Initial Production Bbls.	Depth
Huntington Beach Townsite—		
Ahlburg Gasoline Corp.'s Huntington 2	150	4386
California Pet. Corp.'s McLachlen 1	200	4396
Brockman 1	114	4400
Fee 1	187	4350
Standard Oil Co.'s Huntington 1, wo.	1407	4340
Seal Beach—		
Marland Oil Co.'s Bixby 5	1500	4432
Standard Oil Co.'s San Gabriel Improvement Co. 5	1112	4468
Long Beach—		
Featherstone-Preston's Signal Syndicate 17	450	3250
A. T. Jergin's No. 21	250	3554
B & H Oil Co.'s No. 2	235	4950
Athens-Rosecrans—		
Big 5 Oil Co.'s Wright 4	225	4037
Dominguez—		
Shell Co.'s Reyes 36	700	3614
Union Oil Co.'s Callender 15	400	4364
Brea-Richfield—		
General Pet. Corp.'s Tonner 7A . .	285	3480
Standard Oil Co.'s Kraemer 2-6, wo	220	4750
Sunset—		
Gene al Pet. Corp.'s Pacific-Midway 12	19	2580
Elk Hills—		
Union Oil Co.'s Elk Hills 18	60	3423
Kern Front—		
Geo. F. Getty's Tegeler 13	140	2365
Santa Barbara County—		
Cat Canyon—		
R. & G. Oil Co.'s No. 18	400	3200
Summerland—		
Smith-Barrymore Oil Co.'s No. 3 . .	30	400

Texas

ARCHER COUNTY

Company, Well and Location	Initial Production Bbls.	Depth
Continental Oil Co.'s & Maer-Stanifforth's Wilson 1	*	1602
Dixie Oil Co.'s Wilson 1	*	1601
Gholke et al's Wilson 2	*	1590
P. F. Gwynn et al's Turbeville 1..	*	1521
Magnolia Pet. Co.'s A. J. Lowe 31	40	1290
L. L. Hudson 10	20	1178
Marland Oil Co. & Consolidated Oil Co.'s Ward 2	95	1023
Pandem Oil Corp.'s Thomas 12	20	1164
Payne et al's Parrish 3	40	1578
Petroleum Producers Co.'s Turbeville 2-C	*	1478
Rowe et al's Jentsch 3	15	1195
Roxana Pet. Corp.'s Abercrombie-Taylor 15-A	60	1365
Simms Oil Co. & L. T. Burns' Turbeville 6-A	75	1472
Turbeville 7-A	10	1502
Stidham & Thrasher's Starr 1	*	1905
The Texas Co.'s Garvey 1	*	1365
Underwood Drilling Co. et al's Ward 2	150	1016

BIG LAKE

Big Lake Oil Co.'s University 88	155	2934
University 93	185	2925
University 104	140	2992
University 106	85	3103

BURKBURNETT

R. R. Clark et al's Ward-Todd 12	40	1900

BROWN COUNTY

Advance Oil Co.'s Whitted 1	*	1575
Anderson et al's Thomason 1	*	1565
Anderson & Schults' Hodnett 1	*	1215
Anna Belle Oil Co.'s Armstrong 2	35	1208
Barbara Oil Co.'s Willis 2	25	1355
Bevens et al's Weedon 1	*	1807
Brown et al's Weedon 1	*	2630
Charter Oil Co.'s Andrews 4	30	1330
Humble Oil & Ref. Co.'s Foster 8	20	1197
Foster 10	*	1205
R. Hickman 10	75	1260
J. T. Hodnett 4-B	*	826
J. T. Hodnett 6-B	100	1215
D. C. Wooldridge 11	*	1310
McCullough et al's J. W. Newton 1	*	1795
James A. McKenna et al's Shore 4	*	1387
McLester Oil Co.'s J. Wooldridge 13	*	1325
Mid-West Exploration Co.'s Suttles 19	25	1170
Milham Corp.'s Schafner 1	*	1672
Pandem Oil Corp.'s Westerman 10	5	1290
Quinn et al's Pugh 1	30	1335
Ramsey et al's Henson 1	35	1275
Ratblott et al's Jones 1	*	1660
Roeser-Pendleton Inc's Bourn 1	*	1252
Co.'s J. H. Fry 6	*	2025
Roxana Pet. Corp.'s J. P. Newton 3	145	1273
Sawyer et al's Wallon 1	*	1430
Sinclair Oil & Gas Co.'s J. H. Fry 4	1140	1284
J. H. Fry 6	845	1291
J. H. Fry 8	625	1300
The Texas Co.'s R. M. Lowe 24	25	1284
R. Hickman 15	15	1197
J. C. Pugh 7	50	1360
J. C. Pugh 8	25	1348
Wentz Oil Corp.'s Shore 5	200	1325

CALLAHAN COUNTY

Brown Oil Co. Inc.'s Edwards 1	150	1647
Gibson-Johnson et al's Boydston 1	*	2601
States Oil Corp.'s Weeks 1	*	715

CARSON COUNTY

Marland Oil Co.'s S. B. Burnett 1-E	200	3150
S. B. Burnett 1-F	60	3145
Navajo Oil Co.'s E. S. Polling 1	*	1750
The Texas Co.'s C. R. Garner 1, shot	40	3228

COLEMAN COUNTY

Burke-Greis et al's Dibrell 1-A	*	2182
Van Eman et al's Wells 1	*	1625

CLAY COUNTY

Lone Star Gas Co.'s Waggoner 31	*	1885
Holloway 25	*	1760

COOKE COUNTY

Company, Well and Location	Initial Production Bbls.	Depth
Stump & Co.'s Waggoner 1	10	1310
Waggoner 2	*	1305
Camp-Hedrick & Oil Operators Trust's Kleiss 1	145	1317
Magnolia Pet. Co.'s Alice Johnson 1	¶4	1188
Oil Operators Trust's Ben Luke 2	*	1616

CRANE COUNTY

Gulf Prod. Co.'s University-Lassiter 2	2900	2980
Marland Oil Co.'s Cowden 2-A	10	2385
Simms Oil Co. & Atlantic Oil Prod. Co.'s University 2-A	8000	2953
The Texas Co.'s King 18	105	2372

EASTLAND COUNTY

Root et al's Ray 1	*	3785
The Texas Co.'s L. A. Hightower 11	75	1198

ELECTRA

Culbertson & Co.'s W. T. Waggoner 50	25	1436
Dale Oil Corp.'s Burnett 20	35	1372

GRAY COUNTY

Skelly Oil Co.'s A. G. McKay 1	¶90	2740

HOWARD COUNTY

Magnolia Pet. Co.'s Hyman-Chalk 2	25	1510
Sarah-Hyman 1	50	1631

HUTCHISON COUNTY

Echo Oil Co.'s Smith 1-A, shot	100	2808
Empire Gas & Fuel Co.'s Johnson 5-B, shot	95	2877
J. F. Weatherly 12, shot	45	3060
J. K. Hughes Dev. Co.'s Kingsland 6-B	*	700
Marland Oil Co.'s S. B. Burnett 1-H	500	3078
J. A. Whittenburg 6, shot	30	2833
W. S. Christian 6, shot	200	2960
Mid-West Exploration Co.'s Smith 6, shot	250	2765
Smith-Dick 1, shot	350	2812
Phillips Pet. Co.'s Johnson-Graham 5, shot	130	2995
J. A. Whittenburg-Patsburg 5	600	2900
Phillips Pet. Co. & Gibson Oil Corp.'s W. L. Kingsland 7, shot	75	2771
Phillips Pet. Co. & George Williams' Johnson 3, shot	300	2997
Roxana Pet. Corp.'s Smith 4-A, shot	250	2920
Skia-Tex Petroleum Co.'s Kingsland 6, shot	1850	2980
Southwestern Oil & Dev. Co.'s Johnson 4	150	2970
Triangle Oil Co.'s Smith 5	200	2748

K-M-A & IOWA PARK

Continental Oil Co. & Petroleum Producers Co.'s Love 1	*	1824
Martin et al's Rhodes 1	*	1283
Panhandle Ref. Co.'s Riley-Griffin 6	*	1827
Petroleum Producers Co. et al's Ferguson 1	*	1850
Staley-Wynne et al's Griffin 2	80	1804

MITCHELL COUNTY

The California Co.'s Petitfils 3-A	150	3075
Magnolia Pet. Co.'s C. M. Adams 7	50	3023

MONTAGUE COUNTY

Alexander & Lyles et al's Yarborough 1	*	3507
Barnsdall Oil Co.'s N. J. Howard 3	30	1388
Continental Oil Co.'s N. J. Howard 16-A	40	1405
N. J. Howard 17-A	55	1405
N. J. Howard 7-B	25	1388
J. W. Maddox 13-A	50	899
J. W. Maddox 14-A	25	941
J. W. Maddox 15-A	60	919
Rowland 11-B	30	1161
Salmon 1-A	*	1223
F-H-E Oil Co.'s N. J. Howard 3-C	25	1150
Farmers Creek Oil & Gas Co.'s Flint 1	*	2505
Gulf Production Co.'s Howard-Dennis 2	40	1402
Howard-Dennis 3	25	1401

SHACKELFORD COUNTY

Company, Well and Location	Initial Production Bbls.	Depth
Amerada Pet. Corp.'s Davis 2	*	2360
Amon G. Carter Development Co.'s Nail 1	*	2050
Nail 7	*	2015
Hope Oil & Gas Co.'s Davis *	75	1436
Humble Oil & Refining Co. et al's King 2	*	2330
Hyde & James et al's Moberly 6	100	1171
Independent Oil & Gas Co.'s Davis 3	*	1310
Milham Corp.'s Sedwick 3 ¶2 and	50	4275
Phillips Pet. Co.'s Brooks 3 ¶4 and	380	3564
Ramsey & Maxsey Oil Co 's Manly 1	*	2250
Roeser-Pendleton Inc. & Marland Oil Co.'s W. I. Cook 34-A, sec 60	35	1160
W. I. Cook 35-A, sec 60	50	1152
W. I. Cook 10-C, sec 60	35	1150
W. I. Cook 15-C, sec 6	35	1156
W. I. Cook 26-A, sec 85	45	1342
Rose et al's Moberly 1	30	1409
Tannehill Oil Co.'s Moberly 9	45	1195

STEPHENS COUNTY

Christie Bros. et al's Gardenshire 3	*	2180
Denny A Andrews et al's Andrews 1, ¶1¼ and	25	2021
Texas Consolidated Oil Co.'s Martin 8	100	4601
Texas Pacific Coal & Oil Co.'s Chas. Binney 69	60	1907
Texas Fidelity Oil Corp.'s Pratt 7	¶2	2220

SOUTH VERNON DISTRICT

Humble Oil & Ref. Co.'s W. T. Waggoner 12-H	60	2418
W. T. Waggoner 18-H	30	2429
W. T. Waggoner 9-N	35	1928
Phillips Pet. Co.'s W. T. Waggoner 18-QQ	115	2394
W. T. Waggoner 5-WW	150	2404

THROCKMORTON

Hoffer Oil Corp.'s Matthews 2	*	1570
Bruce Larkin-White & Consolidated Oil Co.'s Conger 2	*	1666

UPTON COUNTY

Dixie Oil Co.'s A. S. Burleson 16	200	2150
Humble Oil & Ref. Co.'s Ricker 2	180	2200
Marland Oil Co.'s M. C. Powell 4	140	2465
Prairie Oil & Gas Co.'s J. F. Lane 2-A	1550	2026
Roxana Pet. Corp.'s Hughes 10	75	2205

WHEELER COUNTY

Canadian Oil Co.'s E. A. Linkey 1	¶50	1980
World Oil Co.'s J. H. Jackson 2, ¶8 and	5	2345

YOUNG COUNTY

Hill et al's Stewart 1	*	858
Pitzer & West et al's Morrison 2	50	2244
Ramsey et al's Payne 2	30	2121
Tidal Oil Co. et al's Benson 11	*	930

SOUTHWEST TEXAS

Duval County—		
Houston Oil & Sun Co.'s No. 2-B Benavides	¶	1682
Henne, Winch & Farris' No. 22 Martinez, sec 276	60	2013
Magnolia Petroleum Co.'s No. 15 Merchant State Bank	¶	1224
O'Hern & Seacord's No. 2 Benavides	¶	1780
No. 5 Benavides	350	1757
Webb County—		
Verdine et al No. 2, blk 1, section 2084	¶	1518
St. Albans' Edward No. 3 Lopez	300	2143
Jim Hogg County—		
Associated Oil Co.'s No. 2 Martinez	¶	2153
Magnolia Petroleum Co.'s No. 23 Martinez	¶	1998
Medina County—		
Medina Synd.'s No. 2 Adams	¶	904
Kleberg County—		
Kipley Oil Company's No. 1 Francis	¶	....
Zapata County—		
Magnolia Petroleum Co.'s test on Cuellar Tract	¶	1364

GULF COAST

Company, Well and Location	Initial Production Bbls.	Depth
Spindle Top—		
Gulf Production Co. No. 6 Jeanette Mann, wo	1100	3250
Hines Oil Co.'s No. 1 Parker	*	3400
Rush & Pittman's No. 1 Hammond	*	4675
Batson—		
Ada Belle Oil Co.'s No. 114 Texas Co.	75	1050
Goose Creek—		
Gulf Prod. Co.'s No. 12 Stateland Oil Co., wo	60	2850
Sour Lake—		
The Texas Co.'s No. 304 Texas Co.	*	4250
Orange Petroleum Co.'s No. 3 Merchant	2000	4100
Hull—		
Gulf Prod. Co.'s No. 1 J. H. Stengler et al	600	3200
No. 81 Phoenix Dev. Co.	600	3200
No. 82 Phoenix Dev. Co.	175	2900
Republic Production Co.'s No. 10 Dolbear, wo	125	2300
Empire Gas & Fuel Co.'s No. 23 Barngrover	1500	3150
Blue Ridge—		
Gulf Production Co.'s No. 8 Bassett Blakely "B"	65	3550
No. 14 Bassett Blakely "C"	75	3175
J. S. Abercrombie & Co.'s No. 6 West-Schenck	75	3850
Pierce Junction—		
Rio Bravo Oil Co.'s No. 5 T. S. "A"	1096	3600
Orange—		
Humble Oil & Refining Co.'s No. 2 Winfree, wo	170	3600
Rycade Oil Co.p.'s No. 2 State "A" wo	100	3500

Eastern States

PENNSYLVANIA

Bradford Field—		
South Penn Oil Co. Bingham 399 tract 1	3	....
Bingham 390 tract 1	2	....
Bingham 494 tract 59	2	....
Bingham 398 tract 1	2	....
Jones 222	3	....
Jones 223	2	....
Hodge 1	2	....
Dent 107	2	....
Smith 135	2	....
Smith 136	2	....
Smith 137	2	....
Moody 35	2	....
Dana & Dana Dana 45	7	....
H. E. Camp Estate Bingham 1	4	....
Piper & Lloyd Ekas 25	3	....
McSweeney & Co.'s Lawton 93	3	....
Fitzgibbons & Wilson Bingham 380 tract 86	3	....
Bingham 368 tract 11	3	....
Linwood Oil Co.'s Germer 1	3	....
Denwood Oil Co.'s Wilson 1	3	....
Wilson & Co.'s Murphy 2	3	....
Melvin, Towne & Co.'s Lovell 2	3	....
L. H. Smith & Son Lincoln 1	4	....
Devore & Potter Marvin 1	3	....
D. J. Moody Wormer & Co.'s 3	3	....
Wormer & Co.'s 4	3	....
F. E. Baldwin Baldwin 4	3	....
Schwab & Rapp Borden 2	3	....
Simon Bros'. Corwin 2	3	....
W. J. Healey Healey 3	3	....
M. A. Dennis & Co.'s Dennis 2	3	....
J. A. Walters Estate Walters 47	4	....
M. C. Reidy Reidy 15	4	....
V. Mongileo Mongielo 5	4	....
Forest Petroleum Corp.'s Forest 1 a32	3	....
Forest 1 a30	3	....
Forest 1 a21	3	....
Rutherford 3	2	....
Rutherford 4	2	....
Butler County—		
Charles Hilderbrand Shroup 5	4	....
E. C. Griffith Griffith 1	3	....
Joe Berry & Co.'s Logan Heirs 1	¶1½	....
McCullough Gas Co.'s Foster 2	¶1¼	....
Dambach-Stevenson Oil & Gas Co.'s Dambach 1	4	....
McGowan & Co.'s Thomas 1	4	....
Venango County—		
M. T. Bowers McClintock 19	3	....
Surety Oil Co.'s Staub 10	3	....
Midland Oil Corp.'s McNellie 28	3	....
Tom McLaughlin McLaughlin 1	¶1	....
Culbertson Bros. Dundas 19	2	....
National Petroleum Co.'s Blank 1	2	....
Greene County—		
Carnegie Natural Gas Co.'s J. C. Morris 2	¶1½	....
T. C. Phillips 1	¶2	....
Manufacturers Light & Heat Co.'s J. & M. Isminger 2	3	....
A. A. Jones 1	¶½	....
Garfield Jones 1	¶¼	....
Natural Gas Co. of W. Va. James McDermott 1	¶1¼	....
Kinney Heirs & Co.'s J. H. Kinney 1	5	....
Filby & Co.'s Mary Ann Goodwin 3	*	....
Clarion County—		
J. A. Bien Bainham 1	¶7	....
Klinger & Co.'s Shirey 3	2	....
I. C. Hess & Co.'s Beichner 1	*	....
Mercer County—		
F. J. Moser Lot 3767 tract 34	2	....
Allegheny County—		
R. C. Chesney Lelia J. Chesney 1	2	....
Boyd Oil Co.'s Hamilton 4	2	....

NEW YORK

Allegany County—		
First Trust & Co.'s Fee 1	7	....
Crowley & Co.'s Coast 1	4	....
N. V. V. Franchot Trustee Zimbauer 1	3	....
Leland Oil Co.'s Leland 1	3	....
McDivitt & Co.'s McDivitt 3	4	....
M. E. Sloan Estate Albert 1	3	....
J. A. Gallets Carls 2	2	....
Breckenridge & Co.'s Breckenridge 2	2	....

WEST VIRGINIA

Calhoun County—		
Hope Construction & Refg. Co.'s L. E. Sickles 1	¶¼	....
Elkins Oil & Gas Co.'s L. L. Lynch 1	5	....
Godfrey L. Cabot S. & P. G. Stuttler 1	*	....
Hope Natural Gas Co.'s C. M. James 1	¶2	....
Columbia Gas & Electric Co.'s J. B. Johnson 1	¶¼	....
Roane County—		
United Fuel Co.'s C. A. & L. M. Shambling 1	¶2¼	....
N. M. Jackson 1	¶2	....
B. K. Littlepage 1	¶2	....
Ritchie County—		
Hope Natural Gas Co.'s Tibbles Heirs 1	¶1	....
Loomis & Co.'s McGregor Heirs 1	¶¼	....
Monongalia County—		
Carnegie Natural Gas Co.'s S. J. Johnson 1	¶2¼	....
J. Wilson 1	¶2½	....
Doddridge County—		
J. E. Travis M. O. Palon 1	*	....
Columbia Carbon Co.'s Lewis Maxwell 2	¶1	....
Wetzel County—		
Wetzel Gas Co.'s S. E. Longstreth 2	¶2	....
Pleasants County—		
Dotson & Rinehart John Rinard	¶1	....
Braxton County—		
Ohio Fuel Oil Co.'s H. H. Wade 1	¶2¼	....
Harrison County—		
Clarksburg Light & Heat Co.'s S. D. Gore Heirs 1	¶2	....
Tyler County—		
Sutton Bros. M. E. Church Lot 1	¶4	....
Lincoln County—		
C. C. Wolfe M. M. Sammel Heirs 1	¶1	....
Cabell County—		
Aetna Oil & Gas Co.'s Margaret C. Moore 1	¶1½	....

KENTUCKY

Ohio County—		
Creek Drilling Co.'s Ambrose Heis 1	100	....
James C. Ellis Oil Co.'s J. Weller 3	100	....
Loman Bros. & Co.'s Harrison 1	15	....
Chicago Petroleum Synd.'s Guenther-Gant 12	25	....
Panther Creek Oil Co.'s Miller 18	2	692
Morgan County—		
Hargus Oil Co.'s Mark Bayes 12	5	....
Estill County—		
Adams & Brenner Mrs. Sawyer 2	5	....
Wayne County—		
Carpenter & Co.'s John Jeeton 3	*	....
Abbott, Porter & Co.'s Coffey-Oatts 6	*	....
Allen County—		
Hunt Oil Co.'s Riley Allen 3	2	....
Costworth & Harley L. Oliver 5	1	....
Warren County—		
Onsel-Hanrahan Oil Co.'s C. G. Davenport 12	15	1062
J. J. Fort Nickolas White 2	3	....
Lucky Strike Oil Co.'s L. Vance 1	1	....
T. A. Sheridan G. A. Davenport 6	2	....

SOUTHEASTERN OHIO

Washington County—		
Preston Oil Co.'s Charles Pught 10	2	....
Belmont County—		
Natural Gas Co. of W. Va. J. F. Bumgardner 5	8	....

CENTRAL OHIO

Perry County—		
Ohio Fuel Supply Co.'s Franklin Bank Co.'s 8	180	....
Planet Oil Co.'s S. R. Ditto 6	75	....
Walsmith & Co.'s McGolf 1	25	....
The Pure Oil Co.'s T. R. Brown 1	¶4	....
A. H. Heisey Gas Co.'s William Daniels 1	¶2	....
C. C. Hilliard George Matt 1	*	....
Holmes County—		
Morgan & Burton George Schuler 1	50	....
Ohio Fuel Gas Co.'s C. P. Allison 1	¶1¼	....
Valentine Close 1	¶½	....
Empire Gas & Fuel Co.'s Elizabeth Steele 2	*	....
East Ohio Gas Co.'s Thomas Doty 1	*	....
Coshocton County—		
The Logan Gas Co.'s L. L. Wantland 1	80	....
East Ohio Gas Co.'s M. J. Nyhart 1	¶5	....
Athens County—		
The Logan Gas Co.'s Ike Pierce 2	*	....
Flo Mooney 1	¶1	....
Fairfield Gas Co.'s J. L. Varner 1	¶1½	....
Medina County—		
Empire Gas & Fuel Co.'s N. S. Sylvester 1	15	....
E. R. Edson Sons Oil Co.'s G. W. Packard 49	*	300
Vinton County—		
Bode & Co.'s Thomas Walburn 1	3	....
Wehrle Interests W. H. Phillips 1	*	....
Guernsey County—		
The Ohio Oil Co.'s G. A. Mehaffey 2	¶7	....
The Logan Gas Co.'s M. C. & M. Grimm 1	¶¼	....
Cuyahoga County—		
The Preston Oil Co.'s Dunford 1	¶3¼	....
Dempsey Bros.'s P. Decker 1	¶2	....
Hocking County—		
The Pure Oil Co.'s L. A. Leslie 1	70	....
Ashland County—		
Kemrow Producing Co.'s S. Sponsler 3	¶2	....

NORTHWESTERN OHIO

Shelby County—		
L. A. Watson F. M. Turner 2	25	1270
Allen County—		
Metzger Bros.'s Henry Metzger 2	2	1219
Auglaize County—		
The Ohio Oil Co.'s W. G. Kishler 32	1	1217

INDIANA

Pike County—		
The Murphy Oil Co.'s Stewart Bros.'s 8	5	1331
The Ohio Oil Co.'s Sarah J. Thomas 10	5	1286
N. B. Coffman 5	*	972
Morrisey & Co.'s Sam Blaize 1	*	1405

ILLINOIS

Wabash County—		
Joe S. Young & Co.'s J. C. Sparks 1	150	1490
Breen Oil Co.'s John Breen 5	30	1441
Lawrence County—		
The Ohio Oil Co.'s Ellen Lutz 9	4	1390
Bruner & Co.'s W. H. Dinning 12	25	1627

MICHIGAN

Saginaw County—		
Willex Oil Co.'s Reinhart 2	20	1833
Bacon Petroleum Co.'s Lehman 1	20	1829
J. & S. Development Co.'s Community lease 1	20	1831
Western Drilling & Oil Corp.'s D. J. McGuire 1	15	1834
Ohio Fuel Corp.'s M. Laundra 1	7	1868

WILDCATS FROM ALL SECTIONS

Oklahoma Wildcats

COMPLETION

Company, Well and Location	Initial Production Bbls.	Depth
Okfuskee County—		
T. A. Johnson's Leady 1, NEc SE SE 25-12-9, Wilcox	*	3318

DRILLING REPORT

BECKHAM COUNTY—Magnolia Pet. Co.'s No. 1, NEc 21-9-23, moving in tools.

CADDO COUNTY — W. J. Hartley's Calbreath 1, SEc NW SE 28-5-12, owd 3394 ft sd. J. A. Abernathy's No. 1, C SW NE 23-5-12, sd for 6-inch 2045 ft.

CANADIAN COUNTY—Hannum, Frank & Slick's Pazourock 1, SW NE 29-13-5, dr 4305 ft.

CIMMARRON COUNTY — Ramsey Bros.' No. 1, C NW NE 27-5-5, show oil 4095 ft, rig burned. Fenton, Brokins et al's Smaltz 1, SEc NE NE 2-2-0, spd and sd.

COMANCHE COUNTY—Mid-Kansas O. & G. Co.'s Cox 1, NEc SE NE 30-1-13, td 1920 ft sd.

GARFIELD COUNTY — Sinclair's Fee 1, SWc SW NE 2-20-5, dr by tools, td 5018 ft, slm.

GRANT COUNTY—Ostot Dev. Co.'s Snyder 1, NEc 6-28-4, ripping 5-inch cas. Brazell & Moses' Royce 1, SWc NW 34-28-4, sd 550 ft. Dedman, Flenngan & Hennage's Sherran 1, NEc SW 16-26-3, sd 1910 ft.

KIOWA COUNTY—A. C. Varner's Boham 1, SEc SW NW NW 5-6-10, sd 1127 ft, litigation.

KINGFISHER COUNTY—Pet. Eng. Core Drilling Co.'s Canfield 1, C NW SE 6-16-7, rig. McKenna & Crawford's Sturgeon 1, NWc SW 27-16-6, sd 115 ft. Reiter & Foster's Davisonal 1, SWc 23-15-5, rig, T. B. Slick may take over.

KAY COUNTY—Ponca Lee Oil Co.'s McNeal 1, NE 32-26-2, td 2795 ft, sd. Tonkawa Dev. Co.'s McDaniels 1, C SE SE SE 15-25-1, hfw 2450-75 ft, sd 2535 ft, td.

LINCOLN COUNTY — Wentz Oil Corp.'s Lukenbeal 1, SWc SE 34-17-3, dr 4453 ft. Mid-Kansas O. & G. Co.'s Griswold 1, NEc NW 33-17-4, sand 438515524 ft, est 4 million gas and water 4423-24 ft, set 5-inch 4441 ft, td 4534 ft, water, sd.

LOGAN COUNTY—Bryan & Emery's Scott 1, NWc SE 33-19-4, dr 3770 ft. Carter Oil Co.'s Rogers 1, SWc NW 32-19-3, dr 4777 ft. Franklin Oil & Gas Assn.'s Moore 1, SWc SE 28-18-4, sand 3059-65 ft, swabbed 32 barrels in 18 hours, sand 4086-90 ft, flowed 40 barrels oil and some water per day, pump 60 barrels per day, 10 barrels of water. Haley & Pioneer's Quair 1, SWc SE 11-18-3, td 1900 ft, rig burned down, will rebuild. Zingery et al's Baker 1, NWc NE NE 5-17-1, sd 4517 ft. T. B. Slick's Berry 1, SWc SE 28-17-1, dr 3878 ft. Blackford O. & G. Co.'s Lier 1, C S L N½ SE 28-16-1, sd 1675 ft, litigation.

PAYNE COUNTY—Twin State Oil Co.'s Tibler 1, NEc NW NE 23-18-1, td 2589 ft, dr by tools.

NOBLE COUNTY—Geo. Miller's 101 Ranch 1, NEc 1-24-1, fsh 5-inch at 4314 ft, td.

POTTAWATOMIE COUNTY — Shaffer et al's Ives 1, NWc SE SE 12-10-3, sd 3620 ft. McCullough's Madgett 1, NWc 25-10-4, ts Wilcox 4982 ft, td 4985 ft, hfw, plugging. Tidal Osage Oil Co.'s Kenyon 1, SWc SE SE 3-8-4, top Wilcox 4922 ft, hfw, dr 4800 ft. Davis, Setrick's McGarthy 1, SEc NW 10-6-3, dr 4825 ft. I. T. I. O. Co.'s School land 1, SEc SW 16-8-5, cemt 8-inch cas 3573 ft.

SEMINOLE COUNTY—Barnsdall's Sullivan 1, NEc SW 10-9-5, dr 2580 ft. Carter Oil Co.'s Harjocke 1, NEc NW NW 26-10-6, sand 3463-85 ft, 400 ft oih, dr 3565 ft. Superior Oil Co.'s Noble 1, SEc SW SE 10-9-6, hl 4105-4145 ft, hfw, td 4268 ft ur 5-inch cas. Pure Oil Co.'s Joah 1, C E L NW NE 15-9-7, ts 3499 ft, td 3513 ft, 10 bbls oil, 30 bbls water per hour, trying to shut off water. Magnolia Pet. Co.'s Strothers 1, SEc NW 17-8-6, dr 2325 ft. I. T. I. O. Co.'s Nouse 1, NW NW NW 1-706, sand 3100-3260 10 mil ft gas, to ur 8-inch cas, spray water; Sarah Wiseman 1, NW SW 32-7-7, set 8inch cas 2505 ft; Payne 1, NW NE 2-8-6, cmtg 8inch cas. Simons & Bean's Lammeter 1, NWc NE NE 7-7-6, bldg rig.

TILLMAN COUNTY—Ossie Drilling Co.'s Snelling 1, SEc SE SE 13-1-18, sd 1525 ft.

TEXAS COUNTY—H. F. Wilcox's Zea 1, SWc SE 29-3-12, ru 6-inch 3620 ft. Haley, Barber & Pulse's Ellison 1, NWc SE SE 4-1-12, sd 3505 ft, will deepen. Connell et al's Tensey 1, SEc NW 5-1-19, spd and sd.

PONTOTOC COUNTY—Lorger & Gillett's Singer 1, SE SE 25-5-6, sd 1930 ft. Tom Slick's Carham 1, SWc SE 21-5-6, lcn, first report. Shaw et al's No. 1, NEc SW 33-5-6, rig, first report.

Kansas Wildcats

COMPLETIONS

Company, Well and Location	Initial Production Bbls.	Depth
Cowley County—		
Branson et al, White 1, SEc SW SW 7-20-6	*	2925

DRILLING REPORT

BARBER OUNTY—Vickers Pet. Co. et al's Ott 1, SWc 30-32-14, sd 4506 ft. Shaffer Oil & Gas Co.'s Alexander 1, c SE 13-33-13, ts 4440-47 ft, ¶5, sd.

BARTON COUNTY—Huffin et al's Smith 1, NE SE NE 17-19-11, fshg 5090.

LYON COUNTY—Culp et al's No. 1, SWc SE 26-19-10, sd 960 ft. Gashe & Balliere's Stratton 1, SEc NW 32-20-13, sd 750 ft.

RENO COUNTY—Sheldon et al's Hanfison 1, SEc NW 10-23-4, dr 3750 ft.

SEWARD COUNTY—Wilson et al's Son 1, c NE NE NE 14-33-33, sd 400 ft.

Northern California Wildcats

COMPLETION

Company, Well and Location	Initial Production Bbls.	Depth
Kerman—		
Associated Oil Co.'s Hermingaus 2..	*	5078

KERN COUNTY

ANTELOPE PLAINS—W. H. Davis' No. 1, dr 2273 ft.

BAKERSFIELD—Gulf Oil Corp.'s No. 1, dr 2456 ft.

BELRIDGE—Union Oil Co.'s Colm 1, dr 700 ft.

BUTTONWILLOW — Milham Exploration Co.'s No. 1-A, sd cmt, 2361 ft.

COMANCHE POINT—Kern 20 Oil Co.'s No. 1, temp sd 2440 ft.

DEVILS DEN—Devils Den Prod. Co.'s No. 1, re-dr 1180 ft. Lucier Louis' No. 1, sd 1495 ft. Marathon Oil Co.'s No. 1, dr 4390 ft. Midway Northern Oil Co.'s No. 1, material on ground. Robins Oil Co.'s No. 1, sd 2280 ft. R. H. Sayers' No. 1, rigging.

ELK HILLS—Interstate Oil Corp.'s No. 1, sd 5156 ft. McAdams Pet. Co.'s No. 1, dr 2762 ft.

GOULD HILLS—A. J. Bomke's No. 2, sd 610 ft. Carolina-Western's No. 1, dr 913 ft. Mendocino-Midway's No. 1, plugging 2930 ft. L. E. Westrich's No. 1, dr 1551 ft. E. S. Shaw's No. 1, rigging.

JAMIN-DELANO—Chanslor-Canfield's Quinn 1, bldg rig.

McKITTRICK—Abbott Pet. Co.'s No. 1, sd 1840 ft. Lacy-Esper Pet. Co.'s No. 1, co 3260 ft. McKittrick Hills' Vail 2, rigging. Ridge Oil Co.'s No. 1, dr 3506 ft. Sisson-Wisdom's No. 1, sd 970 ft.

NORTH MIDWAY—Bolsa Chica Oil Co.'s No. 1, sd 200 ft.

SUNSET—Fresno-Sunmaid Oil Co.'s No. 1, sd 4200 ft.

SHALE HILLS—Huntington-Hawthorne Oil Co.'s No. 1, sd 40 ft. Nelson & Mulford's No. 1, rigging rotary. Oildale Oil Co.'s No. 1, cmt 558 ft.

TEMBLOR HILLS—Fortuna Oil Co.'s No. 1, dr 2371 ft. Hovey Hills Oil Co.'s No. 1, sd. Painted Hills Oil Co.'s No. 1, sd 500 ft.

TEHACHAPI-MOJAVE — Crusaders Oil Co.'s No. 1, fsh 2282 ft. John B. Harding's No. 1, r 440 ft. P. R. Rassmussen's No. 1, prep to resume dr 1100 ft.

UPPER KERN RIVER—Barnes Oil Co.'s No. 1, dr 1255 ft. Commerce Oil & Gas Co.'s No. 1, dr out cmt plug 2508 ft.

WASCO—Main Oil Co.'s No. 1, sd 5304 ft; No. 2, sd 5276 ft.

FRESNO COUNTY

CLOVIS—Fresno-Sunmaid Oil Co.'s No. 1, sd 3760 ft. W. W. Taylor's No. 1, sd 2100 ft.

HURON—Associated Oil Co.'s No. 1, dr 2314 ft.

JACALITOS DOME — Marland Oil Co.'s Mitchell 1, dr 2971 ft.

RAISIN CITY—Fresno-United Oil Co.'s No. 1, dr 3794 ft.

WARTHAM—Bald Mountain Drilling Co.'s No. 1, sd 905 ft. Progressive Oil Synd.'s No. 1, sd 1105 ft.

KINGS COUNTY

KETTLEMAN HILLS — Ahlburg Gasoline Corp.'s No. 1, rigging rotary. Bolsa Chica Oil Co.'s No. 1, sd 2360 ft. Chanslor-Canfield-Midway's No. 1, installing Hild Drive. General Pet. Corp.'s No. 1, dr 2498 ft. Milham Exploration Co.'s No. 1, bldg rig. South Coalinga Oil Co.'s No. 1, dr 2016 ft.

VENTURA COUNTY

CAMARILLO—California Pet. Corp.'s Arnie 1, dr 235 ft. Standard Oil Co.'s Camarillo 1, dr 4948 ft.

CASITAS-OJAI — Miley Exploration Co.'s Casitas 2-A, sd cmt 515 ft.

HOPPER CANYON—Bishop-Buckeye's No. 2, rigged up. Hopper Canyon Oil Co.'s No. 1, dr 5000 ft.

MOORPARK-SIMI— E. A. Parkford's Dabney-Lloyd 1, dr 2100 ft. Shell Co.'s Berlywood 2, dr 1245 ft.

PIRU—Superior Oil Co.'s Pena 1, dr 2512 ft.

RINCON—Montecito Oil Producers' No. 1, sd 3200 ft.

SANTA PAULA CANYON—Null Development Co.'s Anlauf 3, prep to deepen 820 ft.

SESPE-FILLMORE—Smith Pet. Co.'s Smith 2, sd 4003 ft.

VENTURA DIST. — Associated Oil Co.'s Dabney-Lloyd 1, setting boilers. Chanslor-Canfield's Hobson 1-A, re-dr 5605 ft; Hobson 1-B, sd cmt 733 ft. Milham Exploration Co.'s Sexton 1, fsh 7092 ft. Rio Grande Oil Co.'s Canet 1, dr 3856 ft. Star Pet. Co.'s Star-Canet, fsh 3210 ft.

SANTA BARBARA COUNTY

GOLETA—Channel Oil & Dev. Co.'s No. 1, re-dr 4600 ft. Hollywood Oil Corp.'s Sudden R-1, dr 1250 ft. Summerland Oil Co.'s Becker 1, dr 2604 ft. West Penn Prod. Co.'s Shields 2, dr 655 ft.

SAN LUIS OBISPO CO.—Arroyo Grande Pet. Co.'s No. 1, sd 4250 ft. Barneyberg Oil Corp.'s No. 1, sd 4500 ft. Brinkman Oil Co.'s No. 1. dr 450 ft. Carlisle Oil Co.'s No. 1, sd 2680 ft. L. R. Klatts' No. 1, re-dr 2005 ft. Mapes Holding Co.'s No. 1, sd 560 ft. Painted Hills Oil Co.'s No. 1, dr 400 ft. E. G. Starr's No. 1, dr 3275 ft. Waklin Pet. Co.'s No. 1, re-dr 2200 ft. Richfield Oil Co.'s No. 1, bldg rig.

MONTEREY CO. — Petroleum Securities Co.'s Anotebehere 1, dr 1503 ft. Harriman-Jones Oil Co.'s No. 1, sd 4616 ft.

TULARE CO.—Federal Exploration Co.'s No. 1, sd 5185 ft. Josephine E. Neame's No. 1, sd 2026 ft. Martin Pet. Co.'s No. 1, sd 1670 ft. Ozena Oil Co.'s No. 1, fsh 1770 ft. Wm. C. Resser's No 1, sd 1815 ft. J. W. Grafford's No. 19, coring 1992 ft.

SONOMA COUNTY—Shell Co.'s Murphy 1, dr 4110 ft.

Southern California Wildcats

ALAMITOS HEIGHTS—Pan-American Pet. Co.'s Naples 1, stg cmt 4747 ft.

ATHENS NORTHWEST—Union Oil Co.'s Mosier 1, dr 4989 ft.

BANDINI—Pan-American Pet. Co.'s No. 1, dr 4951 ft.

BOYLE HEIGHTS—Haskell M. Green's P. A. S. F. 1, rigging rotary 1400 ft.

CLEARWATER — Clearwater Pet. Corp.'s Blinn 1A, sd 1400 ft.

CLAREMONT—Claremont Oil & Gas Co.'s No. 1, co 1130 ft.

COYOTE-WEST—Bastanchury Ranch Co.'s No. 1, dr 3571 ft.

DAVIDSON CITY—California Well Drilling Co.'s Del Amo, dr 4550 ft.

DOMINGUEZ — Dominguez Extension Oil Co.'s B & B 1, dr 4672 ft.

DOWNEY—C. F. Ackers' No. 1, stg 343 ft.

EAGLE ROCK—Calwin Oil Co.'s No. 1, fshg 6123 ft.

EL SEGUNDO—Southern California Drilling Co.'s Mathson 1, sd 4400 ft.

GARDENA—Circle Oil & Gas Co.'s Pomeroy 1, sd 3360 ft.

HAWTHORNE—Winwell Oil Co.'s Dome 1, stg 5586 ft.

IRVINE—Caluy Oil Co.'s Irvine 1, sd 4247 ft.

LAWNDALE—Smith Pet. Co.'s Johnson 1, dr 5752 ft.

LONG BEACH—Miller-Haley's Extension 1, sd 4865 ft.

MAYWOOD—Magnolia Pet. Synd.'s No. 1, redr 2700 ft.

NEWHALL-SAUGUS — W. W. Stabler's Castaic 1, fshg 3408 ft.

POTRERO—Associated Oil Co.'s Cypress 1, stg cmt 4450 ft. California Pet. Corp.'s Toms 1, rigging rotary. Morse 1, building rig. Fred Cole's No. 1, building rig. Dill & Comstock's Cypress 1, rigging rotary. General Pet. Corp.'s Smith 1, stg cmt 582 ft. George F. Getty's Cypress 1, rigged up. Cypress 2, rigged up. Paul J. Getty's Cypress 1, lcn; No. 2, lcn. Julian Pet. Corp.'s DeKoch 1, rigged up. Fred Walker's No. 1, rig.

RESEDA—Petroleum Securities' Sesnon 1, dr 5906 ft.

SAN FERNANDO — Standard Oil Co.'s University 1, dr 5440 ft.

SAN JOSE HILLS — D. & B. Oil Co.'s Amar 1, dr 3560 ft.

SAN JUAN CAPISTRANO—Norswing-Halbertson 1, dr 4000 ft. Edward W. Robinson's Carr 1, cmt 2414 ft.

SUNSET BEACH—General Pet. Corp.'s Lomita 1, cmt 4151 ft.

TELEGRAPH CANYON—Quadra Pet. Co.'s MJM 1, idle 4160 ft.

TOPANGO CANYON—Standard Oil Co.'s Austin 1, dr 2210 ft.

RIVERSIDE COUNTY—Corona Oil & Gas Co.'s No. 1, sd 1550 ft. Baning Oil Co.'s test, sd 974 ft. Spindletop Oil Synd.'s No. 1, cmt 2615 ft. Trabuco 1, dr 1958 ft.

SAN DIEGO COUNTY — Arrowhead Oil Co.'s Dunn 1, fshg 3210 ft. Cardiff Oil Corp.'s Turner 1, dr 2072 ft. Randall No. 1, dr 1525 ft.

SAN BERNARDINO COUNTY — Arrowhead Development Co.'s No. 1, sd 1550 ft. Burgess-Goodale-Riggins 1, sd 4110 ft. Colton Terrace Oil Co.'s No. 1, dr 1300 ft. H. & P. Oil Co.'s Dome 1, dr 2103 ft. McCarty 1, dr 340 ft. Western Oil Co.'s No. 3, dr 2772 ft. Hesperia Oil & Gas Co.'s No. 1A, co 3315 ft.

Rocky Mountain Wildcats

WYOMING

Oil Well Synd.'s No. 1 Poison Lake, NE¼ 17-31-71, ready to spud. Beneficial Oil Co.'s No. 1 Baxter Basin, NE¼ 29-15-103, lcn. MacPherson Oil Co.'s No. 1, Hot Springs county, NW¼ 2-44-96, oil showing 2840 ft. Kinney-Coastal Oil Co.'s No. 3, Mease dome SW¼ 27-6-3, sd, td not given. Texas Production Co.'s No. 1, Quealy structure, NW¼ 13-17-77, dr 3260 ft. Buck Creek Oil Co.'s No. 1, Warren anticline, NE¼ 25-37-63, lcn. Bridger Oil Co.'s No. 1, Sage Creek, SE¼ 21-1-1, trying for water shutoff, td 1375 ft. Producers & Refiners Corp.'s No. 1, Murphy dome, 8-43-91, fsh 2975 ft; No. 5, Big Sand Draw, 10-32-95, dr 3415 ft; No. 1, Muskrat, 34-34-92, rig completed; No. 7, Big Sand Draw, 14-32-95, dr 2535 ft; No. 2 Garland, 24,56-89, sd 2640 ft; No. 1, Medicine Bow, 25-21-79, setting 10-inch cas 2719 ft; No. 1, Tensleep, 13-46-89, rig completed. Midwest Refining Co.'s No. 6, Dutton Creek, 1-18-70, testing prod. found at 4995 ft. Carter Oil Co.'s No. 1, Nowood, SW¼ 5-48-90, cmt 1690 ft, td 1760 ft; No. 1, Horse Creek, NW¼ 35-17-70, 6¼-in. cas cmt 3215 ft; No. 2, Billy Creek, SE¼ 17-48-82, dr 4400 ft. Union Oil Co. of California's No. 1C, Fremont County, NE¼ 15-5-1, dr 3770 ft; No. 1G, SE¼ 27-1-1, dr 1675 ft; No. 1B, Black Mountain, NW¼ 28-43-91, dr 2570 ft; No. 1S, NW¼ 34143-91, Black Mountain, cmt 2351 ft; No. 1, Parks county, NW¼ 22-47-101, rig completed. Ohio Oil Co.'s No. 1 Corley, 3-43-93, dr 1276 ft; No. 1 Byron, 33-56-97, ur 2490 ft; No. 4 Oregon Basin, 8-51-100, sd 2210 ft; No. 3 Oregon Basin, 8-51-100, dr 3385 ft. Tower Petroleum Co.'s No. 1 Sweetwater county, NE¼ 6-14-103, wosr. Prairie Dog Oil & Gas Co.'s No. 1 Rock Creek, SW¼ 12-19-78, will abn, td not given.

COLORADO

West Side Development Co.'s No. 1, Larimer county, 5-8-69, dr 2600 ft. Left Hand Oil Co.'s No. 1, Boulder county, SW¼ 34-3-70, dr 150 ft. Repollo Oil Co.'s No. 1, Boulder county, 33-1-70, sdtr 4115 ft. Marland Oil Co.'s No. 1, Moffat county, 16-3-91, will save as gas well, td 2500 ft. Mutual Oil & Development Co.'s No. 1, Fremont county, 34-17-70, dr 2965 ft. Texas Production Co.'s No. 2, Rio Blanco county, 31-2-102, sd 2951 ft; No. 1, Moffat county, 27-3-95, co 3100 ft. Midwest Refining Co.'s No. 2, Rio Blanco county, 30-2-102, dr 2910 ft. Trader Oil Co.'s No. 1, San Luis structure, 22-41-10, fsh 3975 ft, td 4302 ft. Essex Oil Co.'s No. 1, Boulder County, 5-1-70, dr 300 ft. General Petroleum Co.'s No. 1W, Montrose county, 25-48-19, sd 3414 ft; No. 1M, Montrose county, 4-46-17, sd 4115 ft. Offset Syndicate's No. 1, Boulder county, 28-1-70, dr 2120 ft. Yuma Valley Oil Co.'s No. 1, Yuma county, 11-1-44, co 3785 ft. Platte Valley Petroleum Co.'s No. 1, Weld county, 24-6-61, dr 2177 ft.

NEW MEXICO

Portage Oil & Gas Co.'s No. 1, San Juan county, 34-30-13, dr 1620 ft. Prairie Oil & Gas Co.'s No. 1, Eddy county, 10-17-31, dr 3404 ft. Maljamar Oil & Gas Co.'s No. 1, Lee county, 15-17-32, completing, td 3915 ft. Cap Rock Oil Co.'s No. 1, Lea county, 11-16-32, dr 635 ft. Midwest Refining Co.'s No. 1, McKinley county, 1-17-9, testing production found at 1640 ft; No. 1, Quay county, 30-8-31, dr 750 ft. Union Oil & Mining Co.'s No. 1, San Juan county, 9-29-9, fsh, td not given. San Juan Petroleum Co.'s No. 1, San Juan county, 17-29-13, dr 1000 ft. Gibson Oil Corp.'s No. 1, Quay county, 25-8-32, dr, td not given; No. 1, Chaves county, 28-11-23, dr 715 ft. Congress Oil Co.'s No. 1, San Juan county, 34-29-11, dr 1765 ft. Marland Oil Co.'s No. 1, Eddy county, 11-20-30, wosr. Delmar Oil Co.'s No. 1, Chaves county, 22-11-26, dr 875 ft.

UTAH

Embar Oil Co.'s No. 1, Moab structure, 1-30-20, dr 1425 ft. Midwest Exploration Co.'s No. 1, Elkridge, 20-40-19, setting 12½-in cas; No. 1, Crane Creek, 5-27-21, fsh 350 ft. Empire Gas & Fuel Co.'s No. 1, Gibson dome, 6-30-21, dr 600 ft. Boulder Knoll Oil & Gas Co.'s No. 1, Boulder Knoll, 17-34-24, fsh 1755 ft.

Arkansas Wildcats

COMPLETIONS

Company, Well and Location	Initial Production Bbls.	Depth
Columbia County—		
Ky-Ark Pet. Co.'s Doss 1, 29-19-20	*	3300
Nevada County—		
Greeson et al's Tidwell 1, 22-13-21	*	1200
Prescott Oil Corp.'s Adams 1, 11-12-20	*	1900
Union County—		
Phillips Pet. Co.'s Dennis 1, 6-18-13	*	3040

DRILLING REPORT

BRADLEY COUNTY — Arkansas Fuel Oil Co.'s Arkansas Lbr. Co. 1, 25-16-12, sd 3144 ft. Johnston & Adam's Southern Lbr. Co. 1, 12-12-12, dr 1020 ft. Magnolia Pet. Co.'s Arkansas Timber Co. 1, 35-15-11, dr 4035 ft.

COLUMBIA COUNTY—Arkansas Fuel Oil Co.'s Barge 1, 14-18-22, dr 50 ft. Colquitt et al's Duffer 1, 23-18-19, lcn. Columbia Oil Synd.'s Whitehead 1, 14-19-23, dr 1570 ft. Haynes et al's Runyon 1, 3-16-21, sd 150 ft. Mitchell et al's Franks 1, 25-19-22, lcn. Scott Phillips' Davis 1, 6-18-20, testing 8¼-inch 2145 ft.

LA FAYETTE COUNTY—J. R. Brown's Thomas 1, 15-16-23, dk. Ken-Saw Pet. Co.'s Red River 2, 5 20-24, sw 2840 ft.

LINCOLN COUNTY—Pine Prairie Oil Co.'s Carter 1, 33-10-6, sd 30 ft.

MILLER COUNTY—Lenze et al's Dale 2, 28-15-26, dr 2755 ft. W. D. Nash's Priest 1, 26-14-26, sd 3850 ft.

NEVADA COUNTY—Furen et al's Cross 1, 12-13-22, sd 600 ft; Rhodes 1, 22-12-21, dr 1240 ft. Humble O. & R. Co.'s Bodcau 4, 9-15-23, r 3595 ft.

OUACHITA COUNTY — A. T. Grayson's Reynolds 1, 21-14-17, fsh 1740 ft. Harrell et al's Ponder 1, 9-12-17, sd 1680 ft. J. D. Reynolds' Chandler 1, 3-14-18, sd 1390 ft. Sunny Jim Oil Co.'s Berry 12, 33-15-15, coring 3930 ft. A. M. Sutton's Schoolhouse 2, 28-15-16, sd 3060 ft.

UNION COUNTY—Bondurant et al's Garner 1, 8-18-12, r 2635 ft. Calgo Oil Co.'s Primm 1, 9-18-17, sd 3105 ft. Grimes & Jones' Williams 1, 8-18-14, set 6-inch 2215 ft. Imperial O. & G. Co.'s Goodwin 1, 26-17-16, sd 3118 ft. Marine Oil Co.'s Winn 1, 11-18-13, 40 million cubic feet gas 2705 ft; Thompson 1, 10-18-13, dr 2645 ft. Ohio Oil Co.'s Crain 1, 1-17-14, to set 8-inch 2511 ft. Simms Oil Co.'s Ballard 1, 9-18-13, wosr 2556 ft. Superior Oil Co.'s Cordell 1, 5-18-13, plugged off bottom, 2984 ft; Jerry 1, 32-17-13, dk. Thorpe et al's Peck 1, 22-18-13, sd 2701 ft. Wingfield et al's Green 1, 15-19-13, dk; Morrison 1, 5-19-13, dr 2950 ft.

Louisiana Wildcats

COMPLETIONS

Company, Well and Location	Initial Production Bbls.	Depth
Claiborne Parish—		
Root Refining Co.'s Cheatham 1, 19-22-6	*	3113
Madison Parish—		
Bannon et al's Yerger 1, 21-16-4e	*	1792
Morehouse Parish—		
Standard Oil Co.'s Interstate Cooperage 3, 9-19-8e	*	1726
Natchitoches Parish—		
Humble Oil & Ref. Co.'s Louisiana Long Leaf Lumber Co. A-2, 26-6-8	*	1917
Red River Parish—		
The Texas Co.'s Marsten 1, 16-14-11	*	3000

DRILLING REPORT

BIENVILLE PARISH—Kimbrough et al's Cargyle 1, 27-15-8, r 1550 ft.

BOSSIER PARISH—Anderson et al's Bulkley 1, 9-20-13, sd 2040 ft. Bahan et al's Gray 1, 27-23-12, dr 2245 ft. Bethany O. & G. Co.'s Dodson 1, 16-23-12, dr 660 ft. Bloomquist et al's Jones 2, 23-18-11, sd 496 ft. Clark & Norton's Ford 1, 32-23-13, dr 400 ft. Doern et al's Thomas 1, 9-22-11, dr 2550 ft. Harrell Drilling Co.'s Atkinson 1, 2-18-12, lcn. Louisiana Oil Refining Corp.'s Blanton 1, 23-23-12, dk. Magnolia Pet. Co.'s Dodson 1, 15-23-12, lcn. Palmer Corp.'s Bossier 1, 9-16-11, dr 3540 ft. Sligo Synd.'s Webb 1, 24-17-12, sd 2380 ft. The Texas Co.'s Caplis 5, 24-16-12, set 4½-inch 1852 ft. Tubbs et al's Jacobs 1, 26-20-13, r 1170 ft. Woodley & Collin's L. & A. 2, 14-23-12, dr 2715 ft.

CADDO PARISH—Ackerman et al's Payne 1, 35-23-16, rig. Big Lake Oil Co.'s Rhodessa 1, 23-23-16, set liner 1524 ft. Dixie Oil Co.'s Robertshaw 81, 13-21-15, 35 million cubic feet gas 3635 ft; Slattery 10, 27-21-15, coring 3709 ft. Gilliam Synd.'s Sellington 1, 27-21-14, fsh 2449 ft. Magnolia Pet. Co.'s Dillion 16, 24-21-15, to perforate at chalk rock, 1750 ft. The Texas Co.'s C. M. L. 47, 23-21-15, dr 3235 ft; Glassell 2, 14-20-15, dr 2870 ft.

CALDWELL PARISH—Humble O. & R. Co.'s Louisiana Central Lumber Co. A-4, 12-11-2e, lcn.

CATHOULA PARISH—S. D. Hunter's Tensas Delta 2, 21-9n-7e, rig. Lochnager O. & G. Co.'s Beazley 1, 26-9n-6e, gas blow-out 3093 ft.

CLAIBORNE PARISH—Magnolia Pet. Co.'s Lee 1, 16-22-8, dr 2090 ft. Mitchell et al's Wilburn 1, 23-19-7, dr 1700 ft. Standard Oil Co.'s Mitchell 1, 29-21-7, to set 4½-inch 2062 ft.

DE SOTO PARISH—Alden Oil Co.'s Powell 1, 13-11-10, sd 2210 ft. Craige et al's Riggs 1, 27-15-13, sd 1380 ft. Dixie Oil Co.'s Jenkins 1, 9-12-11, dr 5040 ft. Helm & Jarmon's Joyner 1, 28-12-11, sd 2998 ft. Magnolia Pet. Co.'s Mason 1, 28-12-11, set 8¼-inch 2589 ft. Snapp et al's Lanier 1, 7-11-11, gas 2790 ft, setting liner.

FRANKLIN PARISH — Exploration Co.'s Moore 1, 12-11-6e, dr 2110 ft. Harrell & Hall's Duncan 1, 20-13-7e, sd 2057 ft. Robinson & Long's Baker 1, 3-15-7e, sd 1443 ft.

GRANT PARISH—Billeaud et al's Ball 1, 19-7-1e, sd 2400 ft. Gulf Ref. Co.'s Swope A-2, 17-9-1e, set 6⅝-inch 1592 ft; Swope A-3, 8-9-1e, gas 500 ft, to deepen. Humble O. & R. Co.'s L. & A. Oil Co. 11, 20-9n-2w, dk; L. & A. Oil Co. 14, 25-9n-2w, lcn. Work et al's Holmes 1, 20-9n-1e, sw 1620 ft.

JACKSON PARISH—Ferguson Trust's Martin 1, 3-15-1e, sd 3254 ft. Houseman et al's Norton 1, 34-15-3w, sd 400 ft. Louisiana Pet. Co.'s Davis 3, 22-15-4w, sd 2301 ft.

NATCHITOCHES PARISH—Lawson et al's Clark-Morse 1, 23-5-6w, washing 2528 ft. Ohio Oil Co.'s L. & A. 1, 23-13-6w, dr 2560 ft. Three League Oil Co.'s Long 1, 34-10-2w, rig. Weaver Bros.' Frost 1, 25-7-7w, dr 1100 ft. Wenzel et al's Brown 1, 38-10-7, dk.

RED RIVER PARISH—S. M. Cagle's Posey 1, 23-13-10, dr 180 ft. Phillips Pet. Co.'s Long Bell 1, 16-12-8, dk.

RICHLAND PARISH—Aarnes et al's Hawley 1, 3-18-9e, sd 2587 ft. Gulf Ref. Co.'s Marshfield 1, 30-17-6e, dr 1535 ft; Wayne 1, 36-17-5e, dr 1400 ft. S. D. Hunter's McCoy 1, 29-16-5e, set 8-inch 901 ft; Seibert 1, 1-16-5e, dr 2385 ft. Louisiana Pet. Co.'s Binion 1, 22-17-6e, sd 2359 ft. Oliver et al's Hatch 1, 2-15-5e, shut in 2316 ft. Palmer Corp.'s Colvin 1, 33-17-6e, coring 2390 ft. Ruston Drilling Co.'s O'Neill 1, 36-17-6e, dr 2190 ft. Stovall Drilling Co.'s Mitchell 1, 30-17-6e, rig. Standard Drilling Co.'s Delta 1, 22-16-7e, rig. Tex-La Carbon Co.'s Broughton 1, 1-16-6e, dr 220 ft.

SABINE PARISH—Arkansas Fuel Oil Co.'s Logan 2, 28-10-12, rig; Logan 3 33-10-12, rig; Logan 4, 33-10-12, dk; Logan 5, 28-10-12, rig. Emlet et al's Bowman-Hicks 3, 8-7-12, sd 4070 ft; Bowman-Hicks 7, 11-7-14, coring 2587 ft; Sabine Lumber Co. 1, 8-7-1e, dk. Godchaux et al's Gieuque 1, 36-5-1e, sd 1518 ft. Greer & Moffett's Moore 1, 5-9-12, lcn. Magnolia Pet. Co.'s Louisiana Long Leaf 1, 16-6-11, r 2881 ft. Lewis Clark Pet. Co.'s Wyatt 1, 23-5-12, r 3140 ft. Ohio Oil Co.'s Cook 1, 34-10-12, dk.

UNION PARISH—Camette et al's Tugwell 1, 21-22-1e, dr 1050 ft. Clark Creek Oil Co.'s Frost-Johnson 2, 9-23-1e, sd 2307 ft. Rhodes et al's Futch 1, 28-23-2w, sd 1970 ft.

WEBSTER PARISH—Davis et al's Lee 1, 22-22-9, sd 2834 ft. Humble O. & R. Co.'s Davis B-5, 23-21-10, setting 6⅝-inch 4216 ft. Labore et al's Bruner 1, 30-19-10, sd 537 ft. Louisiana Oil Ref. Corp.'s Davis 1, 23-21-10, dr 3710 ft. Ohio Oil Co.'s Bank of Cotton Valley 4, 22-21-10, gas 4573 ft. Woodley Pet. Co.'s Cox 1, 22-21-10, dr 4000 ft.

WINN PARISH—Dodge et al's Tremont 1, 65-13-3w, sd 1030 ft. Greer et al's Bodcau 1, 9-11-4w, sd 2280 ft. J. C. Long's Milam 1, 26-13-3w, sd 1450 ft. Ohio Oil Co.'s Edenborne 1, 4-12-1w, dr 3990 ft. Rowe et al's Urania 1, 26-11-1e, dk. Standard Oil Co.'s Tremont 1, 1-12-2w, dr 2230 ft.

Southern Louisiana Wildcats

COMPLETIONS

Company, Well and Location	Initial Production Bbls.	Depth
Calcasieu Parish—		
Earle Poole's Castile 1	*	2117
Cameron Parish—		
Union Sulphur Co.'s Ellender 1	*	1680
East Feliciana Parish—		
E. F. Simms' NcKeeley 1	*	....
Iberia Parish—		
Union Sulphur Co.'s Schwing 1....	228	1143
Jeff Davis Parish—		
Emerson et al's Pierre Comier 1..	*	4502
St. Landry Parish—		
Farmers O. & M. Co.'s Fontenot 1	*	3450
St. Mary Parish—		
Pharr-Reed's Avoca Island 1	*	....

DRILLING REPORT

ACADIA PARISH—Jennings Pet. Co.'s Eunice Crowley 1, 42-9s-2w, lcn. Cline, Smith & Cline's Conkin 5, 45-9s-2e, lcn. Mentau Oil Co.'s Iowa Jennings Oil Co. 1, 41-9s-2w, dk.

ASSUMPTION PARISH — Union Sulphur Co.'s Clifton 2, Napoleonville, lcn.

CALCASIEU PARISH—Standard of La.'s Industrial Lumber Co. 4, Starks dome; Industrial Lumber Co. 5, Starks dome. Gulf Ref. Co. of La.'s Lutcher-Moore 5, Starks 5, Starks dome, lcn. Union Sulphur Co.'s Fee 7-0, Sulphur Mines, dr 2168 ft, rock. Border Research Corp.'s Calcasieu Lake 1, standing. Earle Poole's Castile 1, abn 2117 ft, gumbo.

CAMERON PARISH — Yount-Lee's School Land 5, no report. Border Research Corp.'s Mallard Bay 1, sd; high water; Sabine Lake 1, rigging up. Union Sulphur Co.'s Ellender 2, Hackberry Island, abn 1680 ft, lime rock; Gulf Land 1, dr 1756 ft, rock; U. A. Bell 1, resumed dr 1514 ft; R. Vincient 1, dr 1578 ft, rock; Little 1, 29-12s-10w, rigging up.

EVANGELINE PARISH—Texas' Guillory 2, Pine Prairie, dr 3018 ft, hard sand.

JEFF DAVIS PARISH — Elton Oil Co.'s Buller 1, sd 2065 ft. Emerson et al's Pierre Comier 1, abn 4502 ft, gumbo. Estropal Oil Co.'s Le Duex 2, dr 2135 ft, gumbo. Fred Getty's Lacasine Irri 1, dr 2820 ft, gumbo and shale.

IBERIA PARISH — Gulf's Broussard 1, Eagle Point, dr 3063 ft, pyrites; State Z-1, topped cap rock, 1104 ft. Union Sulphur Co.'s Schwing 1, Eagle Point, pumping 325 bbls. 30 per cent water; Shaw A-1, rigging up. Border Research Corp.'s Vermillion Bay 1, rigging up. Jefferson Oil & Dev. Co.'s Jefferson Is. Salt Mine 1, 58-12s-5e, lcn.

ST. LANDRY PARISH—Bristol Oil & Gas Breaux 1, sd 3015 ft. Farmers O. & M. Co.'s Fontenot 1, abn 3450 ft. Terre Bonne Gas Co.'s Whitman 1, sd 2650 ft, sand and shale.

ST. MARTIN'S PARISH—Rycade's Atchafalava 1, sd acct high water. Calcasieu Oil Co.'s Mier 1, New Iberia, no report. Ohio Oil Co.'s Martin 1, sd acct high water.

ST. MARY PARISH — Border Research Corp's Grand Lake 1, set 6⅝-inch cas 4200 ft; West Cote Blanche 1, dk. Pharr-Reed's Avoca Island 1, lcn abn.

EAST FELICIANA PARISH — E. F. Simms' McKeeley 1, lcn abn.

Texas Gulf Coast Wildcats

DRILLING REPORT

AUSTIN COUNTY—Humble's Austin College 2, Raccoon Bend, dk; Bellville School 1, set 8¼-inch cas 895 ft; Reese 2, dk, Thompson 2, dk, Washington 1, dk. R. E. Graves et al's Cleveland 1, Hickory Mound, dr 894 ft 9 gumbo.

BRAZORIA COUNTY — Associated's Seaburn 1, Stratton Ridge, dr. Roxana's Pabst 2-A, Clemens dome, dr 3945 ft, sand and lime; Clemens 4, dr 3345 ft, sand and lime; Allen Bernard River 1, Allen dome, bailed dry, 4238 ft; waiting on orders; Allen 3, r 5337 ft; Reese 1, dr 850 ft gumbo; Texas' Sweeney 1, Danbury, dr 550 ft, sandy gumbo; Hunt 1, E of Pledger, rigging up.

FORT BEND COUNTY—Sun's Farmer 2, Boling, no report. Texas Farmer 2, set 10-inch cas 550 ft, gumbo; Felder 3, dr 330 ft, lime and sand. Gulf's Trone 1, Long Point, dr 905 ft, sulphur and lime; Beard 3, Long Point, dr 2516 ft, cap rock; Davis 22, dr 953 ft, cap rock; Davis 23, dr 727 ft, gyp.

GOLIAD COUNTY — Houston Oil Co.'s Pettus, 10 mi W Goliad, dr 1082 ft, gumbo; Parks 2, 8 mi E Goliad, dr 1630 ft.

HARDIN COUNTY — Texas' Le Jarza 1, Batson, dr 3908 ft, hard sand.

HARRIS COUNTY—P. S. Griffith's Fee 2, 12 mi N Houston, dr 2548 ft, gumbo. Atlantic-Simms' Burt-Griffith 1, 3 mi N Humble, dk. Juanita Oil Co.'s Kitsman 1, 3 mi N Cypress, dk.

JEFFERSON COUNTY—Gulf's Bordages 2, Fannett, spudded in; Bordages 3, dr 4165 ft, gumbo and lime. Rio Bravo's T. & N. O. 101, ½ mi N Spindle Top, co liner 3398 ft. Hines Bros.' Roberts 1, ½ mi E Spindle Top, trying to test 2608 ft sand, td 3500 ft. Tatum et al's Combest 1, 3 mi N Beaumont, lcn, standing. J. T. Miller Drilling Co.'s Edward 1, Nederland, dr 1925 ft, gumbo. Deep Test Oil Co.'s McFaddin 1, 4 mi NE Beaumont, 1450 ft, fsh for tools. Edmund Estee's Port Acres 1, 2 mi NW Port Arthur, dk.

LIBERTY COUNTY—Union Sulphur Co.'s Kyle 4, Moss Bluff, dr 955 ft, gumbo and lime. Barlow et al's Minchcliffe 1, Excelsior, sd.

MATAGORDA COUNTY—Gulf's Sanborn 2, Hawkinsville, dr 3568 ft, sandy lime and rock; Parkinson 2, set 6⅝-inch cas on bottom, 1058 ft and prep to pump; Craig 8, dr 3752 ft, shale. Sheppard Mott Oil Co.'s Murphy 2, Hawkinsville, sd 3114 ft, sand and bldrs.

VICTORIA COUNTY—R. M. Talbot, Inc.'s Reeves 1, 4 mi W Bictoria, dr 1029 ft, shale.

San Antonio Wildcats

BEXAR COUNTY — McClanahan's No. 3 Sodrok, dr.

CALDWELL COUNTY — United North & South Oil Co.'s No. 1 Kelly, dr. No. 1 Tiller, dr.

DUVAL COUNTY — Associated Oil Co.'s No. 1 Sutherland, dr. Cole Pet. Co.'s No. 23 Benavides, cored fresh water sand at 3240 ft, dr at 3300 ft; No. 28, set casing at 3972 ft; No. 30, blk 4, sec 11, set casing at 1710 ft; No. 31, set casing at 1610 ft; No. 32, set surface casing; No. 33, erected derrick, tools set up, prep to dr. Cintex Pet. Co.'s sec 454, dr. Humble Oil & Ref. Co.'s No. 11 Singer, dr; No. 7 Walsh, dr; No. 5 Schallert, dr; No. 1 Koehler, dr. Humble-Reiter-Foster, sec 144, prep to dr deeper. Houston Oil Co.'s No. 2 Benavides, set casing at 1673 ft; No. 6 Benavides, testing at 1832 ft. O. W. Killam's No. 3 Lopez, dr; Nos. 4 and 5 Lopez, dr. Magnolia Pet. Co.'s No. 1 Spear, dr; No. 1, sur 21, testing; No. 1 sur 174, prod ¶25 at 1683 ft. George Marshall's No. 1, sec 458, testing. Maurer & Duggan's No. 1 Hoffman, dr. O'Hern & Seacord's No. 2, S Benavides, ¶40 at 1780 ft. National Oil Co.'s No. 1 Ball, dr. G. B. Pickett's No. 1, sur 230, dr.

GONZALES COUNTY — Martin Oil Co.'s No. 1 Preston, dr. R. J. Kerchival et al's No. 2 Billings, dk.

JIM HOGG COUNTY—American Well & Prospect Co. No. 20 Palacious, blk 2, sur 291, dr. Associated Oil Co.'s No. 1 Holbein, dr; No. 1 Allen, dr; No. 1 Lopez, dr; No. 2 Martinez, prod ¶35 at 2153 ft. Andrews Pet. Co. No. 1 Bank, dr; No. 1 Palacious, dr. Basher & Maddox's No. 1, blk 18, sur 81, dr. Nos. 2, 3 and 4, dr. Collins et al's No. 2 Palacious, dr; No. 9, blk 21, sur 291, set casing at 1239 ft. Andrews Pet. Co.'s No. 1 Holbein, dr. Grayburg Oil Co.'s No. 14 Weil, sec 81, dr. Harvey, Dauchey & Maddox's No. 1 blk 5, sec 281, plugging back to 1040 ft to make second test. L. M. Holden's No. 3 Jones, dr. Maddox-Humble-Texas' No. 1, blk 17, dr. Murchison & Fain's No. 1 Allen, dr. Martinez, set casing at 2048 ft; No. 24 Martinez, set casing at 1981 ft; No. 25 Martinez, dr. No. 23 Martinez, prod ¶6 at 1998 ft; No. 17 Merchant State Bank, set casing at 1041 ft; No. 16 Merchant State Bank, dr. Morgan's No. 1 Palacious, dr. Maddox & Simms' No. 1 Guerra, dr. Maddox & Dauchy's No. 1 and 2 sur 281, blk 5, lcn. National Oil Co.'s No. 1 Allen, dr. Rycade-Rydal Oil Co.'s No. 5 Lopez, dr; No. 4 Vela, dr. Ritchison & Livingston's blk 18, sec 287, dr. Simms Oil Co.'s No. 1 Leyendecker, dr. Edward St. Alban's No. 5 Lopez, dr. Texas Co.'s No. 1, section 81, dr.

KLEBERG COUNTY—Humble Oil & Ref. Co.'s No. 2-A, dr below 2782 ft. Dennett C-1, oil flowing steadily through 2-inch pipe. Kipley Oil Co.'s No. 1 Francis, prod between ¶6 and ¶8. Texas Co.'s No. 1, spudded in. Witherspoon Oil Co.'s No. 1, dr.

MEDINA COUNTY—Alamo Drilling Co.'s

No. 1 Kenedy, coring at 1110 ft. Pat Armstrong's No. 1 Lacey, dr. Arnett Oil Co.'s No. 4 Nixon, dr. No. 5 Nixon, dr. Carl Switzer's No. 1 Zerr, dr below 2560 ft. California-Medina Co.'s No. 1 Rothe, dr. Fennell et al's No. 1, sur 115, dr. Gibson & Walsh's No. 1 Ottem, dr. Ina Oil Co.'s No. 1 Finger, abn at 1650 ft. R. R. Lewis' No. 1 Keller, dr in lime at 2258 ft. C. E. Lange, No. 2 Adams, set casing at 900 ft. Medina Synd.'s No. 2 Mitchell, dr. J. A. Swayze's No. 1 Oeffinger, dr below 100 ft. Western Gas & Fuel Co.'s No. 5 Adams, dr. Witherspoon Oil Co.'s No. 2 Franklin, set casing at 926 ft; No. 1 Redus, dr in lime at 2250 ft. F. L. Williams' No. 2 Fohn, prep to spud in.

WEBB COUNTY—Associated Carson's No. 2 Webster, dr. J. M. Basharaus No. 1 Espjo, dr. Barnsley-Chicago Synd.'s No. 1, blk 19, sec 335, dr. Crown-Central-Rydal No. 16 Bruni, blk 17, testing. Cresswell & Fallen's No. 1 Gates, dr below 2800 ft. Crown-Central Pet. Co.'s No. 10, Garcia sur, 606, dr; Nos. 12, 13, 14 Garcia, dr; No. 20 Bruni, dr. Ellis No. 1 R. Benavides, r. R. F. Duggan's No. 1, blk 2, sec 608, setting up tools. Daniels' No. 1 Mesquite, dr. Gibble's No. 1, sur 135, dr. Hamilton & Warner's No. 1, de la Garza, blk 222, dr. Henne, Winch & Killam's No. 1 Billings, sec 43, set casing. Hazlitt-Simmons' No. 1 Vela, sur 267, blk 13, dr. Houston Oil Co.'s No. 2 Benavides, sec 268, dr; No. 1 Benavides-Tyng, set casing at 1641 ft. O. W. Killiam' No. 1, blk 19, tested salt water, will drill deeper. Magnolia Pet. Co.'s No. 1 Benavides, testing at 1669 ft; No. 7 Garcis, dr deeper. Murchison & Fain's No. 1 Webster, dr. Nos. 2 and 3 Garcia, dr. M. & N. Drilling Co.'s No. 1 Vela, testing. George Marshall's No. 1 Garcia, dr. Moriss Oil Co.'s No. 2, blk 431, dr. T. P. Morgan's No. 1 de la Garza, set casing at 1669 ft. Newton Drilling Co.'s No. 1 Puig, set casing. Oil Operators Trust Co.'s No. 5 Garcia, set casing at 1606 ft. Ramsland et al's No. 1 Lopez, dr. Rawlins & Pelton's No. 1 Garcia, waiting on water. Edward St. Alban's No. 3 Lopez, prod 300 bbls of oil at 2143 ft. Stroube Brothers' No. 1, blk 18, testing. Sun Oil Co.'s No. 12 Bruni, dr. Wolcott Pet. Co.'s No. 1 de la Garza, sur 606 dr.

ZAPATA COUNTY—Buffalo-Erie,'s No. 3 F. Martinez, dr. Charco Rendondo Oil Co.'s Nos. 59, 62, 63, Share 2, dr. Hill & Associates' No. 1 Villa Grant, dr. O. W. Killam's No. 1 Lange, dr below 1450 ft. Duke Langford's No. 1 Charco, Rendondo Grant, dr. Howard Staggs et al's No. 1 Hinnants, dr. Mission Oil Co.'s No. 1 Slator, dr. Magnolia Pet. Co.'s well on northeast part of Cuellar Tract, making ¶3 at 1364 ft.

West Texas Wildcats

COMPLETIONS

Company, Well and Location	Initial Production Bbls.	Depth
Glasscock County—		
Pete Parrish & Marland Oil Co.'s Nellie Calder 1	*	3500
Reagan County—		
Moody Corp.'s Sawyer 1	*	3030

DRILLING REPORT

ANDREWS COUNTY—Amon G. Carter et al's Cowden 1, cas trouble 560 ft. J. S. Cosden et al's Ratliff-Bedford 1, lcn. Calvin-Belt et al's Ratliff-Bedford 1, lcn. Deep Rock Oil Co.'s W. J. Harris 1, lcn. Maer-Staniforth et al's W. S. Taylor-Meador 1, spd and sd. Neff et al's J. S. Means 1, lcn.

BORDEN COUNTY—R. R. Penn & Julian Pet. Corp.'s A. J. Long 1, elev 2488 ft, top salt 970 ft, top lime 2620 ft tested dry in oil formation 3503-38 ft. Stivers & Guthrie's Snodgrass 1, lcn.

COKE COUNTY — Lipan Oil Co.'s E. C. Rawlings 1, elev 1938 ft, sr 2740 ft; Conner 1, elev 2045 ft, spd and sd.

CONCHO COUNTY—Harry Adams et al's Price 1, lcn. Arkansas Fuel Oil Co.'s S. A. Hartgrove 1, fsh 1440 ft. Associated Pet. Co.'s Sam Waring 1, elev 2085 ft, fsh 2300 ft. Eugene Mayes et al's Hartgrove 1, dr 1480 ft. Exploration Co.'s Wilson-Hartgrove 1, elev 1618 ft, probably junked hole, casing trouble, td 1670 ft. J. R. Lewis & Swoveland's Plants 1, lcn. Marland Oil Co.'s Sansom 1, dr 1275 ft. Mullens-Davis et al's Martin 1, dr 1830 ft.

East Central Texas Wildcats

COMPLETIONS

Company, Well and Location	Initial Production Bbls.	Depth
Kaufman County—		
Barney Carter et al's W. D. Brown 1	*	2984
Limestone County—		
W. K. Clayton et al's Thornton 1-A	*	3310
Navarro County—		
The Texas Co.'s Pruitt 1	*	1508

Texas Panhandle District

COMPLETIONS

Company, Well and Location	Initial Production Bbls.	Depth
Moore County—		
Masters Oil Co.'s Sneed 1	¶66	2385

CRANE COUNTY—Church & Field's University 1, elev 2580 ft, top salt 1100 ft, dr 2680 ft. Bert Weekly & Church's University 1, rig; University 2, lcn. Carl Cromwell & Jones' University 1, rig. W. E. Duffey-Cuthbert & Penn-Tex Dev. Co.'s Cowden 1, elev 2552 ft, top salt 1020 ft, top lime 2927 ft, dr 2950 ft. Eastland Oil Co. & J. D. Collett's University 2, rig; University 3, lcn; University 4, rig; University 5, 6 and 7, lcns; University 8, dr 180 ft. Gulf Prod. Co.'s Crier-McElroy 5, top salt 966 ft, top lime 2695 ft, dr 2735 ft; Crier-McElroy 3-A, set 10-inch cas 445 ft; J. T. McElroy 6, elev 2629 ft, top salt 1035 ft, co 1875 ft; J. T. McElroy 7, top salt 975 ft, dr 2235 ft; McElroy 1-B, spudding; University-Lassiter 3, 4, 5 and 6, rigs; Waddell 1-A, core drill, dr 235 ft. Humble Oil & Refining Co.'s University 1, top salt 1160 ft, dr 1665 ft; University 2, spudding; University 3, 4, 5, 6 and 7, rigs. Independent Oil & Gas Co.'s University 1, lcn. Magnolia Pet. Co.'s Church-University 4, top salt 1140 ft, dr 2200 ft; Hardwick-University 2, rig; Hardwick-University 3, rig; Hardwick-University 4, 5, 6, 7 and 8, lcns; Lassiter-University 2, dr 465 ft; University-Lassiter 3, rig; O'Keefe-University 4, elev 2595 ft, top salt 1151 ft, dr 2660 ft; O'Keefe 5, dr 1355 ft; O'Keefe 6, rig; O'Keefe 7, 8 and 9, lcns. Marland Oil Co.'s Gibbs 2, elev 2548 ft, top salt 650 ft, dr 1975 ft; Hughes 4-C, sd hfw 2460 ft; Hughes 6-D, top salt 705 ft, dr 2200 ft. Marland & F. P. Zoch's Hughes-Keith 3, elev 2581 ft, top salt 730 ft, testing pay after shot 2340-69 ft. Marland-Zoch-McCamey's Cowden 1, rig; Hughes 2-B, top salt 580 ft, dr 1665 ft. Prairie Oil & Gas Co.'s University 4-A, elev 2580 ft, top salt 1140 ft, sd hf oil at 2962-3012 ft; University 5-A elev 2581 ft, top salt 1140 ft, dr 2285 ft; University 6-A, top salt 1140 ft, dr 1200 ft; University-Lassiter 1, rig. Prairie & J. D. Collett's University 1, dr 3665 ft. Simon & Carl Cromwell's Brookfield 1, dr 2685 ft. Simms & Atlantic Oil Prod. Co.'s University 3-A and 4-A, rigs; University 5-A, dr 505 ft; University 6-A, lcn; University 1-B, top salt 1100 ft, dr 2030 ft; University 1-C, and 2-C, rigs. The Texas Co.'s King 13, swab 25 bbls oil 2319-70 ft. Tidal Oil Co. et al's University 1-E, elev 2570 ft, top salt 1093 ft, top lime 2855 ft, dr with 1000 ft, oih at 2930-40 ft; University 1-F elev 2561 ft, top salt 1085 ft, dr 2395 ft; University 2-F, and 4-F, rigs; University 1-H, dk. Henry Zweifel and Hofmeier's Cowden 1, dr by tools 2810 ft.

CROCKETT COUNTY — V. T. Bolin & Co.'s P. O. Coates 1, dr 430 ft. Cumberland Oil & Gas Co. et al's Couch 1, cavey hole 2365 ft. W. W. Donnelly & J. D. Young's Pierce 1, rig. George A. Henshaw & Co.'s University 1, rig. J. K. Hughes Dev. Co.'s Powell 2-B, fsh 2535 ft. Magnolia Pet. Co.'s Shannon 2, top salt 925 ft, top lime 2270 ft, dr hfw 2620 ft. Republic Prod. Co.'s Powell 2, top salt 1140 ft, top lime 2555 ft, testing oil pay 2619-53 ft. World Oil Co.'s Will Schneeman 1, dr 905 ft. J. D. Boung & Carl Cromwell's University 1, sd 1365 ft; J. M. Shannon 1, top salt 920 ft, top lime 2150 ft, dr, hfw 2625 ft.

CROSBY COUNTY—El Capitan Oil Co.'s Slaton 1, sd 1050 ft.

CULBERSON COUNTY—James H. Gardner et al's Radford-State 1, spd and sd.

JEFF DAVIS COUNTY—Humble Oil & Ref. Co.'s McCutcheon 1, cas parted 3430 ft. J. K. Hughes Dev. Co.'s J. Z. Means 1, dr 1620 ft; Means 2, lcn.

FISHER COUNTY—Barbour Oil Co.'s W. A. Cross 1, sr 300 ft. The California Co.'s R. J. Anderson 1, dr, red shale 2837 ft; G. C. Magenheimer 1, ur 8¼-inch cas 2945 ft. Hucony Oil Co.'s Langford 1, sr 2055 ft. Ideal Oil Co.'s Jameson 1, lcn. Marland Oil Co.'s Hodges-Rochelle 1, dr 2245 ft. Fred Phillips et al's C. M. Webb 1, elev 1811 ft, top lime 1120 ft, sd hfw 2220-40 ft. R. W. Rainey et al's Marberry 2, flowing salt water 2526 ft. Shamrock Pet. Co.'s Wheeler 1, dr 3015 ft. Searns & Streeter's W. A. Howe 1, fsh 2015 ft. F. P. Zoch-McCamey-Marland's Clayton 1, dr 2755 ft; Lanius 1, ur 2170 ft.

GARZA COUNTY — Emerald Oil Co.'s Boren 1, rig; Connell 2, spudding. Pandem Oil Corp.'s Justice 1, rig.

GLASSCOCK COUNTY—Marland & Texon Oil Land Co.'s Settles 1, co 770 ft. J. S. Merriwether et al's L. S. McDowell 1, lcn. R. R. Penn's W. P. Edwards 1, materials. Plateau Oil Co. et al's L. S. Bell 1, dr by tools 2270 ft.

TOM GREEN COUNTY—Marland Oil Co.'s Llano 1, fsh 240 ft.

HOCKLEY COUNTY—El Capitan Oil Co.'s Ellwood 1-A, skid rig.

HOWARD COUNTY—Bristow & Merrick's A. J. Hooks 1, spd and sd. Fred Carey et al's Chalk 1, spudding. Comet Pet. Co.'s H. R. Clay 1, spudding. Dixie Oil Co.'s Clay 1, rig. W. W. Donnelly & Mann's Martin 1, lcn. Francis & Brunson's J. W. Furrh 1, lcn. Gulf Prod. Co.'s Chalk 2, dr 1185 ft. L. C. Harrison et al's Dora Roberts 1, lcn. Humble Oil Ref. Co.'s Douthitt 2, dr 980 ft. Lockhart & Co.'s Hyman-Scott 1, sd 3220 ft; Chalk 2, sd 1506 ft. Magnolia Pet. Co.'s Hyman-Chalk 2, completing; Hyman-Chalk 3, lcn. Mary Chalk 3, fsh 860 ft; Mary Chalk 4, dr 195 ft; Kelly-Chalk 1, rig; Kelly-Chalk 2,

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Tulsa Office: 602 Wright Building

lcn; G. O. Chalk 5 and 6, lcns; Owen-Chalk 5-A, 7-A and 8-A, lcns; Sloan-Chalk 1, rig; Sarah-Hyman 2, dr 710 ft; Sarah-Hyman 3, lcn. Marland Oil Co.'s Bryse 1, elev 2568 ft, top salt 1285 ft, set cas 3280 ft; Otis Chalk 9 and 10, lcns; Otis Chalk 11, dr 1545 ft; Mary Chalk 1, dr 1230 ft; Chalk 3-A, sd 1472 ft; Chalk 4-A, dr 1230 ft; Chalk 5-A and 6-A, lcns; Chalk 1-B, dr 1335 ft; Chalk 1-C, set 6⅝-inch cas 1491 ft; Chalk 1-D, dr 1375 ft; Chalk 1-E, rig; H. R. Clay 2, spudding; Clay 3, rig; Clay 1-A, sd 1452 ft; Clay 2-A, sd 1474 ft; Clay 1-B, dr 990 ft; Clay 1-C, dr 900 ft; Clay 1-D, rig; Harding 1, dr 580 ft. Reeves & Apperman et al's Clay 1, testing oil pay 1771-81 ft; Clay 2, spudding.

IRON COUNTY—Whitmire-Cashdollar et al's Bird-Roberts 1, elev 2065 ft, sd 945 ft; Abe Meyer 1, elev 2050 ft, sd 1670 ft.

JONES COUNTY—Bateman & Campbell's Southard 1, dr 1655 ft; Woodson 1, lcn. E. P. Campbell et al's C. Herndon 1, dr 1185 ft. Cole-Hart et al's W. B. Cranston 1, dr 2435 ft. Consolidated Oil Co.'s Armand-Taylor 1, lcn. Garland & Diamond's Glynn 1, lcn. Hurley Oil Co.'s (Gibson-Johnson) John Sears 2, set 10-inch cas 860 ft; C. M. Largent 1, dr 2310 ft. Gillette & Hickey's S. W. King 1, elev 1650 ft, tools recovered, testing oil pay 2070 ft; M. E. Young 1, sd 1200 ft. Grisham-Hunter Corp. and Wildman Pet. Corp.'s Burchfield 1, dr 2280 ft; Williams 1, ur 2150 ft. Hutson-Weaver et al's Smith 1, spd and sd. Kirk & Brewer's Milsap 1, dk. Marland Oil Co.'s Cox 1, sr 3705 ft; Larsen 1, sr 1020 ft. Marsten Oil Co.'s Howell 1, dr 1125 ft. Mid-West Exploration Co.'s Thornton 3, rig; Thornton 4, spudding. Mid-Continent Pet. Corp.'s H. Evans 1, dr 805 ft. Vic H. Martin et al's Culberson 1, dr 2855 ft. Muse-Robertson's Manly 1, ur 1710 ft. Stebbins Oil & Gas Co.'s J. M. Higgs 1, fsh 860 ft. W. G. Stough et al's J. P. Willis 1, sd 730 ft. Phillips Pet. Co.'s R. H. Beasley 1, dr 1985 ft; Mason 1, dr 1765 ft; Joe Winters 3, rig; Winters 3, lcn; Howell 1, lcn; Tessie-Walling 2, dr 2215 ft; Tessie-Walling 3, dr 1010 ft; Tessie-Walling 4 and 5, lcns; W. I. Thornton 1, dr 2235 ft. Swensondale Oil Co.'s Canton 1, rig. J. L. Tomberlin et al's Oscar Clapp 1, lcn. World Oil Co.'s A. W. Clark 1, show oil 2421-25 ft, dr 2480 ft; L. E. C.. Boyd-Lee 1, cas trouble 1055 ft. Zeigler et al's J. W. Reeves 1, ur 12¼-inch cas 915 ft.

KIMBLE COUNTY—Dixie Oil Co.'s Harrison 1, fsh 3040 ft.

KING COUNTY — Gibson-Johnson et al's Burnett 1, lcn; Mid-West Exploration Co.'s Patton 1, lcn. Phillips Pet. Co.'s Burnett 1, rig. Sinclair Oil & Gas Co.'s Burnett 1, lcn. J. L. Patterson et al's Patton 1, sd for water 1060 ft. White Eagle Oil & Refining Co.'s Burnett 1, lcn.

LOVING COUNTY—Owen-Sloan Oil Co.'s Johnson 1, lcn.

LUBBOCK COUNTY — Center Oil Co.'s Bales 1, ur 12½-inch cas 200 ft.

LYNN COUNTY — Hart Oil Corp.'s Edwards 1, sd 1390 ft.

MENARD COUNTY—Clark et al's Kothman 1, dr 440 ft. Elliott & J. R. Lewis' White 1, sd 310 ft.

MITCHELL COUNTY—Magnolia Pet Co.'s T. L. McKinney 1, rig; Mary Foster 4, rig burned, td 2125 ft; W. W. Watson 2, dr 265 ft. Teas Stivers' Hardee 1-A, dr 2415 ft. Teas & Stivers' Hardee 1-A, dr 2415 ft. Morrison & Thompson's Griffin 1, sd 2100 ft. B. E. Walters et al's J. E. Dollen 1, dr 2425 ft.

NOLAN COUNTY—Day et al's Arledge 1, lcn. A. G. Malone et al's J. B. Carlyle 1, lcn. McCaskey et al's Pepper 1, rig. Peters et al's W. L. Booth 1, lcn. Thomas & Reynolds' Allen 1, rig. Stein & Greeben's L. W. Ross 1, lcn. Walford et al's H. D. Simpson 1, lcn. Phillips Pet. Co.'s Scott 1, dk. Henry Zweifel et al's Longbotham 1, sd 300 ft.

PECOS COUNTY—Arkansas Fuel Oil Co.'s Manly Holmes 1, lcn. T. R. Cowell et al's J. C. Trees 1, fsh 2415 ft. The California Co.'s Cordova Union Fee 1, rig. Buell-Hagan et al's Southern Life Batchelor 1, dr 1805 ft; University 1, top lime 1 1935 ft, dr 2385 ft; McKenzie 1, lcn. Carl Cromwell & Kimberlin's Blackman-Scharff 1, sd 280 ft. Del Rio Synd. et al's K. C. & Ft. Stockton 1, sd 745 ft. Kershaw & Livingston's Cannon 1, sd 175 ft. Kirby Pet. Co. et al's S. Rheinstrom 1, spd and sd. Mid-Kansas & Transcontinental Oil Co.'s I. G. Yates 3, dr 915 ft; Yates 1-B, dr 840 ft. Texon Oil & Land Co.'s I. G. Yates 1, sec 55, oil pay 1268-1300 ft, sd with oih. Quinby Oil Co.'s Bennett 2, sd 1305 ft; Townsite 1, sd 3435 ft.

REAGAN COUNTY — Cope-Dalton et al's White-Moore 1, elev 2551 ft, top salt 1091 ft, sd 2665 ft. Hiawatha Oil Co.'s University 1, elev 2831 ft, top salt 1380 ft, top lime 3310 ft, dr 4030 ft. The Texas Co.'s J. D. Sugg 2, rig. Tidal Oil Co.'s University 1, lcn. Texon Oil & Land Co.'s University 6, Group 2, fsh 3225 ft.

REEVES COUNTY—Deep Rock Oil Co.'s Caldwell 1, dr 1070 ft. Grisham-Hunter Corp.'s State 1, elev 3250 ft, sd 3500 ft. Humble Oil & Ref. Co.'s T&P Fee 1-B, fsh 1380 ft. World Oil Co.'s Biggs-Holder 1, fsh slip socket 1810 ft.

RUNNELS COUNTY—Associated Pet. Co.'s W. M. King 1, spd and sd. Bell & Moore's Ferguson 1, rig. Ladd-Hill & Yates' McMillan 1, rig.

SCHLEICHER COUNTY—Thomas Gray et al's Ball Robinson 1, rig.

SCURRY COUNTY—Northwest Co.'s T. C. Stinson 1, sd 3420 ft.

STONEWALL COUNTY — F. P. Zoch & George McCamey's J. D. Ward 1, lcn.

TAYLOR COUNTY—City of Abilene's Fee 1, sd 2265 ft. Gibson-Johnson & Oil Operators Trust's Haines-Hamilton 1, dr 1145 ft; J. F. Hendry 1, lcn. Grisham-Hunter Corp.'s Huddleston 1, dr 1955 ft. Halbert et al's Hunt 1, rig. Humble Oil & Refining Co.'s Mattie Jacobs 1, lcn. Dorning & Perrine's J. A. Hammer 1, rig. Mid-West Exploration Co.'s Dora Smith 1, dr 590 ft; Toombes 1, dr 1025 ft. Noodle Creek Oil Co.'s Alice Rose 1, spd and sd. Sanger Oil & Refining Co.'s Ike Brown 1, fsh 1660 ft; Cox 1, sd 2375 ft; Gillespie 1, sd 2670 ft. World Oil Co.'s J. R. Griffith 1, lcn.

TERRY COUNTY—Kingsland Oil & Potash Co.'s Brownfield 1, sd 1050 ft.

UPTON COUNTY—Gulf Prod. Co.'s J. T. McElroy 1-C, elev 2795 ft, top salt 1655 ft, dr in water 3410 ft. Curtis-Hults et al's Giddings 1, elev 2762 ft, top salt 1515 ft, dr 2815 ft. W. W. Donnelly & Marland Oil Co.'s University 1, elev 2884 ft, dr 1405 ft. Sartain Oil Co.'s Mrs. C. V. Bull 1, re-bldg burned rig, td 3300 ft.

VAL VERDE COUNTY—Douglas Oil Co.'s Sellars 1, sd 2180 ft. S. A. McCaskeys' Sellars 1, sd hfw 2450 ft. O. O. Owens et al's Mills 1, sd 515 ft. Transcontinental Oil Co.'s Stevenson 1, dr 3960 ft. E. T. Williams et al's Holman-McNutt 1, sd 2270 ft.

WARD COUNTY—Marland Oil Co.'s Jennie Sealy 1-A, spd and sd.

WINKLER COUNTY — Champlin Refining Co. et al's Cowden 1, fighting quick sand 600 ft. Gibson-Johnson et al's R. A. Leck 1, lcn. Gulf Prod. Co.'s T. G. Hendricks 1, dr 1625 ft. Ed. S. Hill- Ladd & Simon et al's Ambrugey 1, elev 2995 ft, top salt 1220 ft, dr 2325 ft. Humble Oil & Refining Co.'s T. G. Hendricks 1, lcn. Hendricks 1-A, lcn. Independent Oil & Gas Co.'s Hendricks 1, dr 1005 ft. Llano Oil Co.'s Scarborough 1, dr 1010 ft. McCullough & Marland Oil Co.'s Tobe Morton 1, dr 655 ft. R. S. Matthews et al's Cowden 1, fsh 1225 ft. Pure Oil Co.'s Central State Bank 1, lcn. Skelly Oil Co.'s M. M. Leeman 1, spudding. Southern Crude Oil Purchasing Co.'s Hendricks 2, top salt 1910 ft, dr 2020 ft; Hendricks 2, rotary rig. F. P. Zoch et al's John Sealy 1-A, dr 3555 ft.

Complete Wertz Field Well as Gasser

Casper, Wyo.—The Producers & Refiners Corporation has decided to save its No. 5 well in the Wertz field as a gasser. Some thought was given to deeper drilling. The well has an open flow of more than 20,000,000 cubic feet daily and carries a very high rock pressure. This gas from the Wertz field is piped to Casper for Refinery use.

Beaumont Oil Firm Helps Build Y. M. C. A.

Beaumont, Texas. — The Magnolia Petroleum Company, through its general manager at Beaumont, E. E. Plumly, made a voluntary donation of $25,000 early this week to a fund being made up for the construction of a new Y. M. C. A. building for Beaumont.

The initial donation for the new Y. M. C. A. building was made volutarily by Marrs McLean in the sum of $10,000. Mr. McLean is one of the best known independent operators in the Gulf Coast and a citizen of Beaumont. He was one of the pioneers of Spindletop, starting his first work in the oil industry there when a youth.

The Y. M. C. A. project climaxes one of the most remarkable periods of building for Beaumont in the city's history, a period of development that followed in the wake of Spindletop's deep sa.d discovery last spring.

Start Shipments Over Yount-Lee Docks

Beaumont, Texas.—The new Neches River loading docks of Yount-Lee Oil Company, loctaed on the east side of an 1800-acre tract bought by the company last August, moved its first crude February 21, when the Sundown Yuna barge took a 16,000 barrel cargo from the docks for shipment to the East Coast. The 16,000-barrel cargo was loaded in three hours, 55 minutes. A second cargo of the same size was being loaded February 22, to be moved on the barge Portsmouth to the East Coast.

Texon Buys Interest in Pecos County Test

Fort Worth.—The Texon Oil & Land Company has purchased the remaining half interest of a 640 acre wildcat block in Eastern Pecos County with an oil producer in process of completion from Kemper Kimberlin, San Angelo operator, for a consideration of $320,000. One half cash, and $160,000 out of seven-sixteenths of the oil produced. This deal was closed in Fort Worth Monday, with Frank T. Pickrell, vice-president, handling the transaction for the Texon Oil & Land Company.

The acreage involved in this deal was held jointly by the two parties, and consists of all of section 55, I. & G. N. Ry. survey, block 1, with a wildcat test showing considerable oil and gas from top of sand pay at 1255 feet. This producer is located about four miles southeast of the 3550 barrel flowing well completed late last week on the Yates ranch in Eastern Pecos County by the Mid - Kansas & Transcontinental Oil Company, and promises to become an extension to the Yates field, although a difference of about 255 feet in the depth of the producing horizon may mean a new field. Casing is to be set on top of the pay at 1255 feet, to test.

Leading Companies in Texas

Company	Fourth Quarter 1926	Third Quarter 1926	Second Quarter 1926	First Quarter 1926	Fourth Quarter 1925
Gulf Production Company	6,672,353	5,332,629	3,383,666	2,993,412	3,307,880
Yount-Lee Oil Company	3,946,246	3,145,052	.....	.....	.....
Phillips Petroleum Company	3,378,143	2,394,473	951,093	.....	.....
Humble Oil & Refining Company	2,876,289	3,319,736	3,160,740	3,119,970	3,513,294
Magnolia Petroleum Company	2,764,045	2,894,221	2,187,202	1,395,077	1,476,523
The Texas Company	2,712,872	2,387,272	2,351,025	2,555,554	2,430,441
Marland Oil Company of Texas	1,918,869	1,400,011	.....	.....	.....
Rio Bravo Oil Company	1,794,472	1,127,090	.....	.....	.....
Big Lake Oil Company	1,735,063	1,695,546	1,817,978	1,680,971	1,723,221
McMan Oil and Gas Company	1,208,714	.....	.....	.....	.....
Prairie Oil & Gas Company	1,084,267	.....	.....	.....	.....
Pure Oil Company	1,084,188	1,131,900	1,211,348	1,350,356	1,593,636

Total, fourth quarter, 1926 53,471,631
Total, third quarter, 1926 45,419,269
Total, second quarter, 1926 31,070,972
Total, first quarter, 1926 29,925,790
Total, fourth quarter, 1925 31,443,244

Texas Fourth Quarter Production Report Shows Big Gain

WITH daily average production for the last quarter of 1926 reaching 593,796 barrels, Texas showed the highest gain for any other similar period in her oil history. The total recovery, according to figures furnished the state auditor, for October, November, and December, was 53,471,631 barrels, an increase of 8,052,362 barrels over the second quarter.

This total represents gains by all the leading companies. Out of a dozen companies with more than a million barrels production, nine reported increases.

Gulf Production Company led with 1,339,724 barrels more oil than during the third quarter. This gain was sufficient to keep the Gulf at the head of the list of Texas companies, a place which it has held for several consecutive quarters.

Yount-Lee Oil Company, the principal Spindletop operator, edged up one place in the list and was second, with 3,946,246 barrels, an increase of 801,194 barrels over the third quarter total.

Phillips Petroleum Compnay, a company with extensive Panhandle holdings, jumped from fifth to third place, adding 983,670 barrels over the last quarter.

Humble Oil and Refining Company lost nearly a half million barrels and dropped from second to fourth place. Magnolia Petroleum Company also dropped one place and showed 130,176 barrels less oil. Pure Oil Company just got over the million barrel line, but lost 42,900 barrels.

Marland Oil Company of Texas and Rio Bravo Oil Company were close to each other in their gains. Marland edged up one place with 518,856 barrels more oil, and Rio Bravo with a gain of 667,382 barrels went up four places.

The Texas Company gained 335,600 barrels, an amount sufficient to cause it to keep sixth place, the same as during the third quarter, in spite of the fact that two new companies appeared on the list.

McMan Oil and Gas Company and Prairie Oil and Gas Company were the new ones, each with production slightly in excess of one million barrels.

Big Lake Oil Company went above its output for the third quarter by 39,517 barrels.

Total valuation of all production for the fourth quarter, as estimated by the state department amounted to $78,553,440.

It is interesting to notice that Texas is now producing 20,000,000 barrels more oil per quarter than at the close of 1925.

COMPANIES REPORTING GROSS RECEIPTS TAX ON CRUDE OIL PRODUCTION FOR THE QUARTER ENDING DECEMBER 31, 1926.

Name and Address—	Barrels	Value
Albany Oil Co., Breckenridge	7,658	14,906
Amarillo Oil Co., Amarillo	3,005	3,757
Alaska Petroleum Co., Amarillo	2,135	2,249
Apex Oil Co., Amarillo	12,219	14,458
Associated Petroleum Co., Ft. Worth	19,955	37,071
Apple-Bandeberry Oil Co., Wichita Falls	12,657	30,680
Amicable Life Ins. Co., Waco	539	755
Altus Production Co., Burkburnett	502	1,109
Anchor Oil Co., Dallas	2,617	5,814
Alamo Oil Co., Brownwood	336	713
Allday Oil Corp., Wichita Falls	8,875	21,088
Arnold & Frazier, Putnam	714	1,698
Atlantic Oil Producing Co., Dallas	448,577	802,464
Atlantic Oil Royalty Corp., New York	1,588	2,064
Abercrombie, J. S., Co., Houston	117,493	168,390
Anna Belle Oil Co., Dallas	4,340	10,188
Ada Belle Oil Co., Batson	22,776	32,615
Ailes, J. W., Wichita Falls	1,134	2,325
Acorn Oil Co., Beaumont	8,115	11,361
Adams & Oldham, Beaumont	955	1,266
Ashe Syndicate, The, Ft. Worth	1,238	2,733
American Well & Prospecting Co., Corsicana	66,714	73,393
American Refining Co., Inc., Wichita Falls	139,348	201,363
Ascot Co., The, Wichita Falls	11,647	29,371
Agate Bros., Eastland	248	480
Agate, A. L., Trustee, Eastland	106	191
Appleman, H., Tulsa, Okla.	15	27
Amster, N. L., Ardmore, Okla.	2,385	3,851
Adams, Brown & Lickey, Wichita Falls	1,002	2,385
Aaronson, C. T., Tulsa, Okla.	429	939
Artex Oil Co., Wichita Falls	4,111	9,263
Andrews, W. R., et al. Putnam	2,776	6,098

Name and Address—	Barrels	Value
Alonzo, Jr., Oil Producers, Laredo	2,661	3,326
All-American Oil & Gas Co., Oklahoma City, Okla.	44	94
Andrews Petroleum Corp., New York, N. Y.	7,065	10,183
Aztec Petroleum Co., San Antonio	191	240
Arkansas Natural Gas Co., Pittsburgh, Pa.	311	623
Arkansas Fuel Oil Co., Pittsburgh, Pa.	6,490	13,468
Associated Oil Co., San Francisco, Cal.	44,808	58,616
Amerada Petroleum Corp., Tulsa, Okla.	245,898	462,046
Amyx, J. W., et al, Eastland	656	1,562
Atlas Oil Corp., Humble	4,272	5,981
Buttram Petroleum Corp., Oklahoma City, Okla.	36,286	90,215
Bonner, J. S., et al, Wichita Falls	3,830	8,968
Baldwin & Griswold, Ft. Worth	1,010	2,121
Beasley Drilling Co., Electra	3,077	7,227
Beasley, C. U., Electra	4,200	9,905
Burns, I. T., Wichita Falls	23,678	55,066
Boyd, E. W., Cisco	4,964	11,463
Breckenridge Gasoline Co., Toledo, Ohio	468	1,039
Big 4 Consolidated Oil Co., El Paso	279	611
Bliss & Weatherbee, Shreveport, La.	6,340	16,222
Bexata Oil Co., San Antonio	2,182	3,729
Bowman Oil Co., Rockdale	3,050	6,757
Baker, J. A. and Mollie B., Breckenridge	7,524	15,048
Boller, C. W., Wichita Falls	1,465	3,265
Baker Oil Co., Inc., Houston	3,005	3,967
Blue Bonnett Petroleum Corp., San Antonio	1,412	2,381
Bass & Dillard, Wichita Falls	2,273	5,182
Borealis Oil Co., Oklahoma City, Okla.	4,714	10,512
Booth Oil Co., Olney	599	1,296
Black Cat Oil Co., Electra	1,383	2,995
Bass, Dillard & Bower, Wichita Falls	662	1,534
Brinkley Producing & Refining Co., Pittsburgh, Pa.	608	1,245
Bynum, C. W., Rockdale	1,983	4,432
Badger Oil Co., Amarillo	9,408	11,236
Bevering, A. H., et al, Henrietta	1,726	3,529
Brown, Joseph, Wichita Falls	221	497
Braden Co., The, Tulsa, Okla.	3,247	7,676
Buffalo Oil Co., Amarillo	3,650	3,334
Babcock-Scheurer & Schlaffke, Electra	176	389
Big Indian Oil & Investment Co., Gainesville	841	1,683
Bush & Cluck, Waco	270	391
Bailey & Damuth Drilling Co., Wichita Falls	925	1,831
Basham, C. E., Wichita Falls	63	144
Brock & Showers, Corsicana	2,538	5,971
Black-Pearson & Hudson, Corsicana	12,275	15,344
Buckeye Pipe & Supply Co., Breckenridge	292	613
Bohner, C. L., Burkburnett	4,291	9,061
Bashara & Bashara, Waco	335	502
Baldwin, F. C., et al, Ft. Worth	3,903	9,358
Barnsdall Oil Co., Tulsa, Okla.	49,038	106,371
Broderick & Perrin, Ft. Worth	957	2,110
Brown, Dr. E. W., Estate, Orange	5,016	7,023
Barnum, R. G., Oil Corp., Amarillo	2,684	3,355
Bell Burke Oil Co., Waco	410	835
Bartlett, Wm. & Co., Electra	664	1,434
Bartlett Production Co., Rockdale	8,157	18,354
Brady Bros., Ardmore, Okla.	4,837	10,738
Billington-Lee, Pendleton & Bullington, Wichita Falls	9,428	19,689
Bullington, Lee & Pendleton, Wichita Falls	5,810	14,962
Bryan Oil Corp., Wichita Falls	1,880	3,904
Burk-Venus Oil Co., Dallas	45	96
Brazos River Gas Co., Wichita Falls	202	531
Brownwood Producing & Ref. Co., Brownwood	2,248	4,857
Bashara, M. J., Wichita Falls	55,179	78,706
Bridwell & Heydrick Oil Co., Wichita Falls	132,791	297,825
British American Oil Producing Co., Wichita Falls	17,909	40,155
Bridwell & Heydrick, Trustee, Wichita Falls	4,775	10,999
Big Lake Oil Co., Pittsburgh, Pa.	1,735,063	3,141,819
Burkburnett Production Oil Trust, Baltimore, Md.	860	1,987
Bashara, J. F., Houston	27,595	44,120
Bynum & Palmer, Rockdale	402	925
Biel, Wm. A., Von Ormy	32	56
Bearden, Annie (Lease), Wichita Falls	7,362	17,084
Burton McKee Oil Corp., Strawn	387	882
Burke-Greis Oil Co., Tulsa, Okla.	4,122	9,955
Burke-Greis & Gwinnup, Tulsa, Okla.	2,417	5,433
Britton, Gordon & Wickens, Strawn	544	1,351
Beggs Oil & Gas Co., McKinney	1,474	3,450
Buchanan, S. R., Batson	12,887	18,042
Barkley & Conway, Ranger	40,645	102,961
Barkley & Crotty, Ranger	9,971	21,842
Barkley, Crotty Six & Little, Ranger	1,844	4,060
Burns & Maxson (Humble Acct.), Wichita Falls	2,618	6,141
Burns & Maxson, Wichita Falls	7,752	16,664
Bridwell & Mayfield, Wichita Falls	8,469	19,786
Bradstreet, L. G., Cross Plains	27,376	65,605
Beaver Oil Corp., Oklahoma City, Okla.	10,407	13,008
Big Bend Oil & Gas Co., Laredo	1,300	1,625
Bluebonnet Oil Co., Wichita Falls	936	2,134
Blair & Kell, Dallas	6,045	14,516
Barkley & Meadows, Wichita Falls	99,708	217,250
Bochell Co., The, Wichita Falls	8,923	21,528
Brown & Co., Inc., Cisco	8,424	19,737

Name and Address—	Barrels	Value
Bailey, E. B., Wichita Falls	608	1,324
Bleakley & Kinnison, Wichita Falls	1,140	2,342
Brannon & Murray, Cisco	6,337	15,369
Bailey & McClure, Wichita Falls	622	1,604
Barkley & Meadows, Wichita Falls	6,652	15,121
Cosa Oil Co., Cisco	772	1,781
Cook & Reeder, Wichita Falls	4,154	9,559
Cotton, J. H. & Co., Iowa Park	1,711	3,921
Coppock & Coleman, Iowa Park	3,713	8,361
Cromwell, Carl G., Big Lake	18,501	25,991
Chapman, P. A., Estate, Waxahachie	24,465	50,762
Cezeaux & Martin, Humble	7,532	10,547
Climax Petroleum Co., Ardmore, Okla.	2,361	4,722
Crowe & Crowe, Wichita Falls	44	94
Cintex Petroleum Co., Cincinnati, O. (9-30-26)	28,101	35,126
California Co., The, Colorado	225,435	370,029
Caldwell Guadalupe Pick Up Station, Luling	3,107	4,040
Craig & Lowrie, Pittsburgh, Pa.	1,668	2,619
Cottle Oil Co., San Antonio	652	860
Clem Oil Co., Houston	518	725
Canyon Oil & Gas Co., Inc., Cross Plains	28,742	70,570
Corlett, W. B., Wichita Falls	653	1,361
Cisco Oil Co., Tulsa, Okla.	43,116	87,815
Charter Oil Co., Brownwood	16,942	32,595
Clough, Chas. E., Wichita Falls	1,799	3,636
Cranfill Bros. Oil Co., Dallas	13,151	29,731
Coffey Schalaffke, Electra	150	316
Conner Sons & Cloughly, Gotebo, Okla.	6,685	15,240
Coble-Wittenburg Oil Co., Amarillo	32,082	44,852
Centerfield Oil Co., Amarillo	500	630
Cockrell-McElroy Oil Co., Amarillo	40,292	48,857
Cline, W. D., et al, Wichita Falls	500	1,125
Cole, W. C., Wichita Falls	1,162	2,761
Caruthers Company, San Antonio	2,465	4,113
Capitol Oil Co., Orange	3,984	5,577
Christie Bros., Wichita Falls	11,779	26,397
Coffey & Graham, Wichita Falls	492	1,146
Canary, S. C., et al, Tulsa, Okla.	634	1,459
Cintex Petroleum Co., Cincinnati, O.	15,676	19,596
Chandler, C. G., Germantown, Philadelphia, Pa.	1,717	2,146
Cady Oil Co., Moran	4,563	9,639
Collins, J. L. & Co., Corsicana	31,052	39,807
Crown Central Petroleum Corp., Houston	140,804	176,006
Chapman, P. A., Jr., Eastland	715	1,478
Conway Bros. & Gholson, Ranger	3,436	7,157
C. G. & C. Oil Co., Wichita Falls	475	1,023
Cowling & Newell, Burkburnett	651	1,474
Cowling & Hopps, Wichita Falls	251	611
Camp Oil & Gas Co., Wichita Falls	7,550	17,385
Clara Oil Co., Wichita Falls	643	1,533
Curry, E. M., Cross Cut	18,846	47,151
Cline Oil Co., Wichita Falls	2,385	5,247
Cosden, J. S., Inc., Ft. Worth	82,429	198,161
Continental Oil Co. of Texas, Wichita Falls	958,747	1,928,705
Culbertson Co., Wichita Falls	25,682	59,951
Carter, Fine & Carter, Wichita Falls	3,388	6,351
Consolidated Oil Co. of Texas, Wichita Falls	39,199	87,769
Campbell, Walter K., Wichita Falls	4,694	10,559
Campbell, Walter K. Co., Wichita Falls	393	859
Chicago Oil & Land Co., Inc., Rockdale	2,266	4,671
Crosbie, T. S., San Antonio	2,041	3,533
Croslin, T. S., San Antonio	2,472	.....
Cohen, Aaron, Baltimore, Md.	20,952	47,772
Cornhusker Oil Co., Lincoln, Neb.	5,121	6,401
Carlin & Dewhirst, Ranger	354	894
Carlin, W. W., Ranger	369	824
Champlin Ref. Co., Enid, Okla.	1,238	1,856
Cohen & Lebow Trust, Baltimore, Md.	287	627
Clay, J. D., Houston	3,339	4,677
Crown Oil & Ref. Co., Houston	18,428	25,800
Clear Lake Oil Co., Rockdale	5,799	12,918
Chenault, Palmer & Burch, Wichita Falls	21,555	49,513
Clark, R. R., (from 4-1 to 12-31-26), Wichita Falls	94,604	220,937
Curtis, J. A., Wichita Falls	6,048	14,067
Chenault, N. B., Wichita Falls	6,612	15,246
Crawford, Jas. K., Tulsa, Okla.	12,638	30,833
Clear Creek Oil Co., Brownwood	250	512
Canadian River Oil Co., Amarillo	26,104	33,135
Cranfill & Reynolds, Cisco	227,697	507,362
Colony Oil Co., Wichita Falls	1,616	3,794
Coffield & Hale, Rockdale	5,499	11,873
Coffield & Hale, Rockdale	728	1,522
Carter, Roy I., Wichita Falls	12,747	30,769
Castlebury, S. A., Vernon	924	1,859
C. W. M. T. Oil Co., Wichita Falls	3,416	7,755
Clark Harbin & Baldridge, Wichita Falls	579	1,322
Crenshaw & Whitehill, Wichita Falls	2,493	5,864
Continental Supply Co., St. Louis, Mo.	503	1,023
Chestnut & Smith Corp., Tulsa, Okla.	116	239
Coyle Concord Oil Co., San Antonio	2,232	4,827
Cox, Edward B., Ardmore, Okla.	3,149	6,629
Campbell Royalty Co., Wichita Falls	675	1,520
Corsicana Oil & Ref. Co., Corsicana	10,671	13,864

Name and Address—	Barrels	Value
Davis, W. F., Wichita Falls	891	1,880
Davis, L. R., Tulsa, Okla.	427	572
Dixon Reeder & Cook, Wichita Falls	2,431	5,687
Darlington, F. J., Whitsett	2,852	2,567
Douglas Oil & Investment Co., Electra	2,260	5,833
Doering, Jno. A., Houston	12,777	23,312
Deep Sands Syndicate, Corsicana	466	582
Duffield & Howard Oil Co., Tulsa, Okla.	964	1,875
Dale Oil Corp., Wichita Falls	33,060	75,533
Darilek Lease Account, Wichita Falls	2,492	5,781
Dixon Creek Oil Co., Amarillo	531,787	788,292
Daniel, S. B., Wichita Falls	1,788	4,048
Derby Oil Co., Dallas	2,906	5,906
Dominion Oil Co., Tulsa, Okla.	1,615	3,487
Douglas Bros. & LeBus, Electra	751	1,614
Douglas, L. P., & Douglas Oil & Inv. Co., Electra	1,900	4,432
Dale Oil & Refining Co., Inc., Wichita Falls	4,764	10,591
Den-Wich Oil Co., Abilene	1,263	2,842
Double Five Oil Co., Amarillo	4,278	5,381
Derby & Haines, Wichita, Kans.	35,921	44,901
Delmar Oil Co., Bartlesville, Okla.	3,450	4,311
Danciger, A., Wichita Falls	1,870	4,157
DuBose, Kirkpatrick, Moore & Snebold, Ft. Worth	2,334	4,759
Dillon-Glasscock Co., San Antonio	613	963
Douglas Oil Co., Tulsa, Okla.	1,083	1,354
Dennis, J. S., Moran	1,778	3,750
Dudley, G. S., Iowa Park	1,037	2,339
Dayton Oil Co., Dayton	548	767
Dale & Crawford, Electra	950	2,251
Dale Knotts Oil Co., Wichita Falls	265	620
Dibble Oil Co., San Antonio	2,723	3,540
Derby Haines & Williams, Wichita, Kans.	131,509	164,386
Deutser, B., Trustee, Beaumont	1,699	2,379
Dorian, R. P., Wichita Falls	6,244	13,803
Domestic Oil Co., Cisco	2,202	5,265
Dixie Oil Co., Inc., Shreveport, La.	273,110	269,762
Devonian Oil Co., Tulsa, Okla.	80,405	105,821
Dixon & Reeder, Wichita Falls	376	561
Davis, Caroline A., Somerset	593	983
Dunnigan & Dunaway, Amarillo	20,292	25,365
Dickey Oil Co., Cisco	247	488
Dallas-Bradford Oil Co., Dallas	248	555
Duquesne Oil Corp., Eastland	895	2,101
Emrick, U. R., Chicago, Ill.	593	1,265
East Batson Oil Co., Batson	20,184	28,525
Empire-Pierce Fordyce Lease- Jno. F. Foster, Receiver, Fort Worth	14,071	32,915
Eddy Oil Co., Beaumont	747	1,008
Electra Production Co., Electra	1,920	4,526
Empire Gas & Fuel Co. ((Me.) Bartlesville, Okla...	727,460	1,033,575
Eureka Producing Co., Tulsa, Okla.	24,872	56,105
Eastern Petroleum Corp., Wichita Falls	1,793	3,661
Ernest Oil Co., Rockdale	1,533	3,219
Edgington & Niles, Laredo	795	993
Earnest, Herman, Ranger estimate	300	528
Easton, E. S., Wichita Falls	2,403	5,392
Ellis & Anderson, San Antonio	194	325
Evans Oil Co., San Antonio	7,474	9,716
Eastland Oil Co., Fort Worth	20,198	34,154
Erie Investment Limited of Texas, Toronto, Canada	1,087	2,349
Electra Callahan Oil Co., Electra	1,540	3,541
El Paso Burkburnett Oil Co., El Paso	84	167
Eggers, J. E., Trustee, San Antonio	1,076	1,779
Echo Oil Co., Amarillo	171,922	196,617
Electra Gulf Oil Co., Electra	3,008	6,695
Erickson, David, Wichita Falls	169	368
Fuchs, Fritz, Taylor	373	793
Fuller, E. E., Wichita Falls	372	789
Fresno Oil Co., Wichita Falls	21,042	47,396
Fisher, R. E., Trustee, Burkburnett	562	1,279
Ferguson, Hawkins & Hester, Wichita Falls	1,836	4,217
Fisher, Fannie E., Admx., Newport N. Y.	3,366	7,540
Freeman Hampton Oil Corp., Wichita Falls	11,067	25,021
Fogle Oil Co., Minerva	2,286	4,853
Fort Ring Oil & Gas Co., Ft. Worth	802	1,842
Ferguson, W. R., Wichita Falls	730	1,694
Foster & Sandford, Ft. Worth	881	1,485
Fisher, R. E., Trustee, Burkburnett	859	859
Farish & Ireland Lease, Houston	4,600	6,440
Frontier Oil Co., San Antonio	19,379	35,390
Flynn, W. B., Beaumont	5,460	8,233
Feagin, Gillette & Roth, Tulsa, Okla.	13,645	31,756
Fuller, King & Daniel, Wichita Falls	3,917	9,145
Fleming & Kimbell, Sherman	21,714	28,158
F H E Oil Co., Sherman	14,246	19,611
Blackburn Co. (The), Amarillo	16,761	20,157
Fisher & Gilliland, Wichita Falls	6,842	15,619
Forbes, Thos., Graham	79	124
Fisher-Gilliland-Gates & Nutt, Wichita Falls	4,255	10,018
Franchot, D. W. & Co., Tulsa, Okla.	191	380
Fountain Production Co., Saratoga	4,500	6,302
Florence Oil Co., Oklahoma City, Okla.	4,983	12,399
Farlyn Oil Co., Houston	36,331	46,405
Five Rivers Oil & Gas Co., Wichita Falls	894	2,030
Foster, Townsend, Ungren & Frazier, Putnam	5,027	11,617
Fuqua & Hipp, Grandfield, Okla.	1,559	3,247
Fensland Oil Co. of Texas, Denver, Colo.	8,368	17,913
Ferguson & Watson, Electra	2,273	5,268

Name and Address—	Barrels	Value
Gladys Belle Oil Co., Tulsa, Okla.	722	1,480
Glenridge Oil Corp., St. Louis, Mo.	4,730	10,677
Gutzler, W. F., Wichita Falls	218	452
Green, W. J., et al, Wichita Falls	137	275
Galena-Signal Oil Co., Houston	81,856	127,241
Gates-Bacon-Lee, Wichita Falls	52,422	111,896
Gultex Production Co., Waxahachie	4,500	10,578
Goldsmith, N. D., Olney	1,129	2,241
Gaither Production Co., Rockdale	786	1,616
Godley Oil & Gas Co., Dallas	13,454	28,970
Granite Oil & Gas Co., Ridgeway, Colo.	349	805
Godfrey, F. L., Enid, Okla.	121	265
Gilbert Company (The), Beaumont	5,958	8,342
Gallagher & Lawson, Desdemona	142	256
Grahm & Lash, Moran	2,381	5,392
Grand Duke Producing Co., Muskogee, Okla.	209	443
Gunn Production Co., Cross Plains	6,922	15,323
Gulf Coast Oil Corp., Houston	20,031	28,043
General Oil Co., Houston	699	1,587
Goolsbee & Graham, Wichita Falls	148	324
Gutzler & Cottingham, Indianapolis, Ind.	60	127
Gordon Oil Co. (The) of Texas, Logan, Ohio	143	318
Guthrie, Cole & Ferguson, Wichita Falls	1,578	3,421
Gillispie, R. G., Estate, Cisco	10,736	26,531
Graham, H. L., Wichita Falls	1,761	3,819
Gates Oil Co. (Wyoming Corp.) Denver, Colo.	21,603	27,191
Gardner Bros. & Collins, Wichita Falls	1,832	4,739
Gilman & Conway Bros., Ranger	18,253	46,537
Golding & Chochran, Wichita Falls	5,156	10,054
Grady, D., Electra	715	1,698
Gilliland Oil Co., Tulsa, Okla.	1,185	3,238
Gopher Oil Co., Amarillo	700	875
Gohman Oil Co., Rockdale	3,249	6,662
Gilland-Scott et al, Wichita Falls	601	1,383
Grayce Oil Co., Wichita Falls	25,402	56,461
Guaranty Oil Co., Electra	243	601
Goolsbee & Goolsbee, Wichita Falls	258	564
Glass Bros., Minerva	1,053	1,969
Glasscock, Rosa V., San Antonio	838	1,425
Glasscock Leasing Syndicate, San Antonio	2,764	4,838
Grayburg Oil Co., San Antonio	260,237	360,665
Gibson Oil Co., Amarillo	52,451	85,104
Gulf Production Co., Houston	6,672,353	10,111,349
Golden West Oil Co., San Antonio	32,004	42,502
Gates Oil Co., Ardmore, Okla.	4,694	11,716
Gilliam Logan Oil Co., Ft. Worth	3,403	5,506
Gray, T. H., Ft. Worth	1,478	2,429
Gholson, Thompson, Barkley & Crotty, Ranger	6,405	14,263
Group No. 1 Oil Corp., Big Lake	844,808	1,526,591
Gwynn, P. F., Agent, Wichita Falls	2,378	5,279
Gwynn-Boyd Drilling Co., Wichita Falls	38,215	49,454
Gwynn, P. F., Wichita Falls	307	610
Goldelline Oil Corp., Oklahoma City, Okla.	10,407	13,008
Galvez Oil Corp., Tulsa, Okla.	6,171	13,058
Huber, J. M. Company of La., Inc., Breckenridge..	2,238	5,473
Harris-Fisher Oil Co., Cisco	1,013	2,156
Harrel McElreath & Cook, Wichita Falls	233	499
House & Lewis Oil Co., Cameron	1,050	2,100
Houghland Production Co., Ponca City, Okla.	4,729	10,593
House Oil Co., Baird	6,358	14,373
Howell, J. H. Trustee, Electra	373	859
Hardy Oil Co., Wichita Falls	4,288	9,482
Hutchinson County Oil Co., Amarillo	750	787
Hemby, J. M., Electra	1,159	2,666
Hefley, McIntosh & Thomas, Cameron	820	1,725
Hill & Riley, Amarillo	15,904	22,721
Hagy Co., The, Amarillo	200	250
Halmack Oil Co., Dallas	4,005	8,576
Hitchman & Howard, San Antonio	1,693	3,079
Hobbs Oil Co., Tulsa, Okla.	4,197	9,264
Hyde & James, Albany	17,152	37,557
Hammond, L. P., Wichita Falls	1,338	2,677
Hambleton, Geo., San Antonio	626	1,106
Hamon, Jake L., Jr., Ardmore, Okla.	13,921	30,109
Hyde Production Co., Houston	8,172	12,424
Hagaman Refining Co., Ranger	828	1,928
Hooser, Jno. W., Dallas	41,960	76,820
Hooser Oil Co., Dallas	12,632	24,402
Humphreys & Merritt, Wichita Falls	2,211	4,590
Hull Oil Co., Houston	38,760	56,793
Humphreys Corporation, Houston	117,003	226,094
Hart Oil Corp., Ft. Worth	624	1,460
Hart-Mexia Syndicate, Ft. Worth	466	1,003
Hughes, J. K., Oil Co., Inc., Mexia	51,776	104,753
Hughes, J. K., Developing Co., Mexia	471,557	761,871
Herbert Oil Co. of Texas, Ft. Worth	1,742	4,220
Hester, Hawkins & Staley, Wichita Falls	885	2,162
Houston Production Co., Houston	27,561	41,746
Hamilton, Robt., et al, Eastland	591	1,211
Habif, J., Los Angeles, Calif.	76	122
Hamilton & Wilson, Wichita Falls	4,814	11,411
H. B. J. Oil & Gas Trust, Baltimore, Md.	1,542	3,552
Harwell, O. H. & O. E., Abilene	486	1,104
Harwell Bros., Abilene	1,074	2,506
Holmes & Riley, Amarillo	27,754	.....
Holmes & Huey, Amarillo	8,122	10,031
Helvetia Oil Co., San Antonio	17,746	31,598
Hockaday & Shaw, Wichita Falls	2,056	4,415
H. Y. Oil Company, Ft. Worth	9,509	22,497

Name and Address—	Barrels	Value
Holbrook & Woods, Wichita Falls	14,083	30,924
Henshaw, G. A., Jr., & Co., San Angelo	42,305	104,426
Hardie, Joe M., Sour Lake	379	530
Hueco-Ranger Oil Co., El Paso	329	718
Hankamer, Earl C., Sour Lake	1,196	1,675
Hoffer Oil Corp., Ft. Worth	7,249	16,506
Hoppes, W. T., Burkburnett	173	452
Hanlon Gasoline Co., Tulsa, Okla.	1,127	2,187
Hughes, Wm. K., Trustee, St. Louis, Mo.	1,321	2,714
Haggard, J. E., Wichita Falls	192	372
Hammon, Heyser, Garrett & King, Wichita Falls	3,569	8,442
Hammon, Heyser & Garrett, Special, Wichita Falls	28,366	53,199
Hammon & Garrett, Wichita Falls	4,241	10,052
Hammon, Heyser & Garrett, Wichita Falls	2,816	6,695
Homaokla Oil Co., Okla. City, Okla.	4,441	10,999
Hammon & Hyser, Wichita Falls	448	1,029
Hammon Wayne-Special, Wichita Falls	1,960	4,519
Hobson & Voorhees, San Antonio	1,185	2,273
Hope Oil & Gas Co., Ft. Worth	31,196	63,818
Humble Oil & Ref. Co., Houston	2,876,289	5,476,331
Harris & Hays Co., Okmulgee, Okla.	1,304	2,764
Hickok Producing & Dev. Co., Toledo, Ohio	623	1,114
Howard Petroleum Corp., Tulsa, Okla.	1,418	2,770
Hardie, J. M., & Co., Sour Lake	712	997
Hester, Hawkins & Ferguson, Tr., Wichita Falls	3,340	7,627
Houston Oil Co. of Texas, Houston	26,059	40,147
Housman, D. H. & Co., Dallas	48	118
Hamilton & Martin, Wichita Falls	2,163	4,673
Henderson, E. R., Trustee, Tulsa, Okla.	92	184
Hickory Oil & Gas Corp., Ft. Worth	267	534
Helf, C. H., Albany	1,347	2,453
Hamilton, H. L., Estate Partnership, San Antonio	7,826	16,329
Harris Hays Oil Co., Okmulgee, Okla.	2,007	3,846
Horn, Jno. E. & E. S. Horn, Trustee, Kansas City, Mo.	384	907
Howard, Duffield & Berlin, Tulsa, Okla.	531	984
Hinson & Tidwell (Glidewell lease), Graham	860	1,938
Hinson & Tidwell (Shimmell lease), Graham	2,686	6,155
Idaho Oil Co., San Antonio	2,407	4,213
Infield Petroleum Co., Austin	1,352	3,145
Indiahoma Corporation, The,	2,811	.....
Indepndent Oil & Gas Co., Tulsa, Okla.	163,277	181,320
Ilseng Production Co., Inc., Ft. Worth	8,794	17,518
Ilseng, A. G., Ft. Worth	233	514
Interocean Oil Co., Tulsa, Okla.	18,283	39,563
Jacob Oil & Gas Co., Graham	838	1,774
Johnson Bros, San Antonio, (9-30-26)	14,178	33,217
Johnson Bros., San Antonio (12-31-26)	13,642	27,215
Jones Oil Co., Wichita Falls	3,016	6,908
Jackson, J. S., Trustee, Sour Lake	3,064	4,290
Jonray Oil Co., San Antonio	4,438	7,593
Johnson, O. C., Trustee, San Antonio	1,224	1,531
Jones, W. A. & Thos. Phillips, Minerva	313	682
Jones, J. A., Moran	457	1,069
Judson Oil Co., Tulsa, Okla.	15,500	35,791
Julia Oil Co., Sour Lake	4,334	6,068
Jennings Oil Co., Yoakum	5,416	11,995
Jones, J. E., Wichita Falls	1,634	3,782
Jackson Co., San Antonio	1,570	2,748
Junior Oil Co., Cross Plains	2,429	6,351
Jones, Edwin M., El Dorado, Ark.	31,073	68,002
Junior Oil & Pipe Line Co., Corsicana	1,226	1,533
Japhet Production Co., Houston	65,039	81,299
Jameson, Chas. M., Moran	1,429	3,346
Janellen Oil Co., Tulsa, Okla.	219	394
Kuhlemeier-Kleiner Oil Co., Cisco	968	2,145
Keystone Production Co. of Texas, Ft. Worth	5,579	13,111
Kerr, T. P., Corsicana	371	784
Kent, G. C., Corsicana	40,947	86,904
Kleinfelder, B. F., Breckenridge	1,551	3,322
Kurz Oil Co., Somerset	744	1,186
Klemcke, Geo., Trustee, Von Ormy	2,858	4,466
Kavanaugh Petroleum Co., Houston	1,389	3,091
Kemrow Company, Wooster, Ohio	15,327	35,414
Kone Production Co., San Antonio	36,734	87,191
Kahle-Gracey & Diver, Bridgeport, Ill.	13,542	17,334
Kolp, C. F., Electra	13,305	28,975
Keen & Wolf Oil Co., Shreveport, La.	17,487	24,482
Kate Bell Oil Co., Dallas	1,608	3,631
Kendrick, P. S., Albany	534	1,034
Kistler, Frank B. & Co., Denver, Colo.	236,330	295,412
Kaufman, L., San Antonio	570	875
Kemp-Munger-Allen Oil Co., Wichita Falls	7,711	17,632
Keith, E. F., Desdemona	1,387	2,823
Kurz, A. A., Jackson lease, San Antonio	78	139
Kurz, A. A., San Antonio	301	494
Kent Middleton Ref. Co., Corsicana	26,992	58,494
Kleiner Bros., Cisco	207	466
Knotts, F. F., Wichita Falls	779	1,815
Kistler & Lenix, Amarillo	42,213	52,767
King Royalty Co., Wichita Falls	13,237	30,486
K. & S. Corporation, Laredo	39,150	48,938
Kewanee Oil & Gas Co., Titusville, Pa.	15,142	37,095
Kirby Petroleum Co., Houston	11,855	23,930
Kilgore, M. H., Beaumont	509	701
Kornfeld, Mrs. Fannie, Tulsa, Okla.	262	530

Name and Address—	Barrels	Value
Keener Oil & Gas Co. of Texas, Tulsa, Okla.	5,979	13,719
Kirk & Brewer, Gorman	2,181	5,159
Kimmell & Dillard, Wichita Falls	7,241	15,708
Killam, O. W., Laredo	2,556	3,195
Lomax, Thornton, Jr., Wichita Falls	15,223	35,961
Lowe, Delaney & Carter, DeLeon	2,295	5,215
Lesh, P. F., Wichita Falls	3,014	6,464
Len Cook Oil Co., Electra	1,109	2,520
Light Oil Co., Beaumont	232	404
Lucky Six Oil & Gas Co., Bangs	170	350
Lucey Petroleum Company, Dallas	1,120	2,399
Lee, R. Q., Cisco	207	498
Leonard Oil Co., Somerset	414	669
Leonard, Geo., Somerset	251	361
Lake Erie Trust Co., Trustee, Cleveland, Ohio	975	2,243
Long, Roy, Oil Co., Navasota	3,577	8,154
Lowrey, J. T., Albany	72	108
Larkin, W. B. (Burnet-Larkin lease) Wichita Falls	461	1,025
Lucky Tex Oil Co., Amarillo	27,583	34,466
Lewis, J. E., et al, Eastland	1,759	3,724
Lytle Oil Assn., Lytle	344	527
Letwin, Sam, Breckenridge	3,332	6,657
Lanier, C. C., Gainesville	11,159	21,296
Lowrey Oil Corp. & W. R. Burns, Wichita Falls	3,024	6,245
Laredo Oil Co., Laredo	4,097	5,121
Lee, Homer, Wichita Falls	3,955	9,169
Little Caddo Syndicate, Ft. Worth	2,691	6,065
Lenix, J. H., Amarillo	3,026	3,825
Lamb, Geo. E., Brownwood	194	400
Laclede Petroleum Co., Dallas	101	202
Lewis, J. E. & Co., Eastland	776	1,888
Lesh-Kilcrease & Co., Nocona	7,852	12,446
Lewis, M. L., Wichita Falls	818	1,863
Levy, Leonard M. Trustee No. 2, Ft. Worth	3,014	7,640
Liberty Oil & Gas Trust, Baltimore, Md.	2,155	4,318
Long, F. M., Humble	749	1,118
Lake Graham Oil Co., Houston	454	761
Lackey, W. G., Tulsa, Okla.	6,781	15,290
Lay Oil Co., Cisco	247	488
Lain Oil Co., Somerset	1,640	2,763
Lawson, Eugene B., Nowata, Okla.	66,347	150,067
Langford, W. S., Wichita Falls	1,768	3,895
Little, William, Breckenridge	237	450
Lone Star Gas Co., Dallas	15,713	36,277
Lebow, C. H., Tulsa, Okla.	918	2,165
Lake View Oil Co., Sour Lake	16,575	23,205
Linedo Oil Co., Lincoln, Neb.	2,930	3,662
Louisiana Oil & Ref. Co., Shreveport, La.	38,118	77,133
Levy, Lenord M., Trustee No. 1, Ranger	4,097	10,320
Mecom Oil Co., Houston	10,507	14,710
Moore. C. O., Oil Corp., St. Louis, Mo.	19,337	45,522
Miller Oil Co., Electra	458	819
Mendenhall Oil Co., Cross Cut	5,298	13,152
Moutray Oil Co., Abilene	90,048	197,729
M. & V. Oil Co., Wichita Falls	10,120	23,023
Montgomery, Rea & Montgomery, Sedwick	3,556	7,798
Mary Elizabeth Oil Co., Dallas	4	11
Moss & Urscherl, Mexia	1,766	3,973
Moss, Urscherl & Keys, Mexia	5,161	9,806
Moss & Keeling, Mexia	4,948	11,727
Moss & Keeling et al, Mexia	76,682	164,866
Minnehoma Oil & Gas Co. et al, Tulsa, Okla.	6,233	7,964
Margay Oil Corp., Tulsa, Okla.	4,240	8,779
Madison Oil & Gas Co., Ft. Worth	7,496	19,320
Meredith, J. D., Moran	3,957	7,170
Magee Brothers, Electra	1,118	2,590
Magee & Stipe, Electra	1,871	4,553
Mann, George P., Minerva	945	2,107
Moran, W. J., Wichita Falls	2,775	6,266
Miller & Miller, Putnam	1,461	3,301
Maxson & Company, Wichita Falls	2,724	6,225
Minntex Oil Corporation, Wichita Falls	828	1,539
Mahlstedt Oil Co., Ft. Worth	1,247	2,999
Mills Bennett Production Co., Houston	35,456	56,498
Milham Corporation of Texas, San Antonio	135,877	275,529
Midwest Exploration Co., Amarillo	189,318	276,221
Moody Corporation, Houston	34,620	48,130
Magnolia Petroleum Co., Dallas	2,764,045	4,555,982
Mid-Continent Petroleum Corp., Tulsa, Okla.	17,008	40,207
Marnet Oil & Gas Co., Tulsa, Okla.	4,336	9,170
Mitcham, G. P., Cisco	833	1,655
Milham Production Co., Inc., Rockdale	1,350	2,842
Mann & Forbes, Graham	2,708	6,220
Marsalis Bros., Humble	2,556	3,578
Midwest & Gulf Co. of Texas, Trust Estate, Tulsa, Okla.	747	1,373
Morton, A. D., Bartlesville, Okla.	545	1,064
Moore, F. L., Trustee, Tulsa, Okla.	3,879	8,502
Moore & Lewis et al, Eastland	3,195	6,926
Meridian Petroleum Corp. of Texas, Tulsa, Okla.	4,172	8,866
Mook-Texas Oil Co., Ft. Worth	4,381	9,585
Mid-Kansas Oil & Gas Co., Findley, Ohio	84,725	186,870
Moore, N. A., Eastland	715	1,479
Majestic Gasoline Co., Ft. Worth	23	48
Muse & McDermott, Ft. Worth	539	1,090
Matador Oil & Gas Co., Quanah	260	610
Mennis, G. W., Wichita Falls	2,527	5,915

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Say you saw it in The OIL WEEKLY

Name and Address—	Barrels	Value
Martin, A., Receiver, Laredo	15,447	19,309
Macknold Company, San Antonio	340	553
Moore & Henderson, Tulsa, Okla.	856	1,769
Minor Oil Company, Beaumont	7,208	10,091
Maer & Staniforth, Wichita Falls	5,062	10,689
Madden & Hunt, Olney	23,479	51,082
Minerva Petroleum Co., Minerva	1,594	3,496
Marland Oil Co. of Texas, Ft. Worth	1,918,869	2,596,990
Mann, L. T., Admst and Cosmopolitan Oil, Wichita Falls	1,247	2,495
Mann, F. A., Graham	1,347	3,191
McDonald, A. C., Putnam	4,651	10,709
Maben Oil Corp., Wichita Falls	497	1,024
Medina Oil & Gas Assn., San Antonio	300	503
Mancill, R. W., Trustee, Cisco	324	733
Moutray & Son., Abilene	639	1,306
Mohegan Oil Co., Mohegan Lake, N. Y.	274	514
Moss Farm Oil Co., Wichita Falls	288	599
Mills & Garrity, Corsicana	1,654	2,905
Martin & Harrison, Houston	1,671	2,339
Martin Petroleum Co., Humble	4,064	5,690
McLester Oil Co., Breckenridge	4,662	9,895
McMan Oil & Gas Co., Tulsa, Okla.	1,208,714	1,602,652
McClure, W. D. & Son, Iowa Park	489	1,183
McGregor, Stanley, Wichita Falls	2,520	5,337
McCutchen, C. E., Trustee, Wichita Falls	14,286	31,809
McKanna, James E., Wichita Falls	48,236	118,296
McEwan, J. P., Trustee, Ft. Worth	1,487	3,279
McDaniel, E. R., Cisco	2,789	6,551
McNallen & Griffin, Tulsa, Okla.	5,889	12,425
McNamara Oil Co., Beaumont	3,078	4,309
McIlroy Oil Co., Amarillo	25,685	32,223
McDonald, W. W., et al, Dallas	4,188	9,028
McCarty Oil Co., Wichita Falls	87,598	199,625
McCarter, R. C., Cisco	237	519
McCrary, E. W., Tulsa, Okla.	3,645	7,431
McBride, W. C., Inc., St. Louis, Mo.	3,482	5,419
McLester, Jerome, Cisco	1,134	2,324
Nash & Windfohr Oil Corp., Graham	6,830	16,488
National Supply Co. of Texas, Ft. Worth	458	1,068
National Oil Co., San Antonio	1,102	1,173
Newport & Ohio Petroleum, Newport, N. Y.	556	1,251
Noack Oil Co., Rockdale	1,978	4,155
Nortex Drilling & Dev. Co., St. Louis, Mo.	380	879
Norman Oil Co., Wichita Falls	3,326	8,312
Number Nine Oil Co., Tulsa, Okla.	3,303	7,784
Navarro Oil Co., Houston	123,374	195,296
National Petroleum & Ref. Co., Wichita Falls	1,169	2,725
Noble Oil & Gas Co., Tulsa, Okla.	4,080	8,591
Newby Oil Co., Amarillo	4,516	5,302
New Domain Oil & Gas Co., Pittsburgh, Pa.	16,759	23,247
National Supply Co. of Texas, Toledo, Ohio	17	28
Nunn-McAuley Oil Co., Amarillo	10,653	17,500
Noble, Thomas, Oil Co., Wichita Falls	2,224	4,227
National Supply Co. of Texas, Ft. Worth	148	376
Necessity Oil Corp., Dallas	1,417	2,523
Newton & Palmer Oil Co., Rockdale	3,767	8,221
Oktah Co., The, Tulsa, Okla.	1,068	2,465
Ocean Oil & Ref. Co., El Paso	1,079	1,855
O'Neil, H. A., Burkburnett	2,867	6,743
Omohundro, W. B., Wichita Falls	2,668	6,214
Overby, J. D., Iowa Park	792	1,759
O'Neil, Jno., Wichita Falls	19,901	49,937
Osage Development Co., Bartlesville, Okla.	1,948	2,435
Owenwood Oil Corp., Ft. Worth	3,258	6,785
Oil Investment Co., Wichita Falls	5,760	12,479
Offenbacher, Emile, Tulsa, Okla.	340	726
Olean Petroleum Co., Bristow, Okla.	49,033	67,334
Old Ocean Oil Co., Kansas City, Mo.	6,453	9,392
Owenwood Pool No. 3, (J. W. Robinson Tr.), Ft. Worth	10,316	20,943
Overby, W. W., Lease (Lee Wilson), Wichita Falls	333	783
Olney Oil & Ref. Co., Olney	761	1,617
Oil State Petroleum Co., Enid, Okla.	493	500
Old Colony Oil Co., Dayton	3,082	4,315
Orange Petroleum Corp., Orange	52,760	80,424
O'Donohoe Gates Drilling Co., Wichita Falls	8,034	18,208
Oriental Oil Co., Dallas	1,308	2,949
Orth, Thos. R. T., Wichita Falls	363	800
Oldom, W. P., Iowa Park	2,068	4,798
Owens Oil Co., Brownwood	3,154	5,386
Prairie Lee Production Co., San Antonio	16,652	21,648
Pioneer Oil, Gas & Ref. Co., Danville, Ill.	1,389	2,474
Pilkerton, F. L., Burkburnett	2,895	6,892
Petroleum Investment Co., Wichita Falls	7,241	16,339
Primrose Oil Co., Sour Lake	1,095	1,533
Pivoto, M. E., Sour Lake	4,756	6,658
Piper, L. E., Trustee, Vernon	2,344	4,945
Powell, J. L., Wichita Falls	405	821
Parry Oil Co. of Texas, Inc., Ft. Worth	1,571	3,300
Prescott Phoenix Oil & Gas Co., Muskogee, Okla.	209	443
Prather, Ed., Special, Houston	213	551
Price-Russell Co., Ranger	8,119	10,002
Porch, Telshaw & Cady, Houston	935	1,548
Paraffine Oil Co., Houston	12,734	18,293
Pois, M., Trustee, Wichita Falls	433	961

Name and Address—	Barrels	Value
Phillips, J. R.—J. J. & Thos. Currie, Amarillo	134,414	169,926
Palmer, Freddie Oil Co., Rockdale	187	412
Pattison-Lenix Oil Co., Amarillo	74,669	88,420
Palo Duro Oil Co., Amarillo	32,685	42,543
Pantex Oil Co., Amarillo	251,192	313,991
Parsons, Ed. V., Ft. Worth	232	549
Planet Petroleum Co., Bartlesville, Okla.	43,930	103,521
Pentagon Oil & Gas Co., Ft. Worth	56	137
Petroleum Dev. Co., New York, N. Y.	1,143	2,458
Pomona Mutual Oil Syndicate, Pomona, Calif.	5,314	12,588
Philip Bros., Beaumont	2,196	2,950
Powers Production Co., Houston	3,683	5,371
Patterson, W. A., Ft. Worth	3,365	8,015
Peery-Moran & Woody, Wichita Falls	2,877	6,496
Putnam Oil Co., Tulsa, Okla.	20,861	45,895
Perkins, J. J., Wichita Falls	4,503	10,427
Perkins & Cullum, Wichita Falls	70,810	160,998
Petroleum Venture Co., Somerset	329	526
Pandem Oil Corporation, Dallas	103,521	231,028
Progressive Production Co., Kansas City, Mo.	3,784	8,611
Pennok Oil Corp., Tulsa, Okla.	32,547	58,239
Paddock & McRae, Houston	1,141	1,649
Panhandle Ref. Co., Wichita Falls	79,069	173,162
Phillips Petroleum Co., Bartlesville, Okla.	3,378,143	4,815,023
Production Engineering Corp., Wichita Falls	7,987	18,754
Paggi Bros. Oil Co., Beaumont	11,188	15,547
Producers Supply & Tool Co., Marietta, Ohio	1,191	2,588
Peerless Oil & Gas Co., Tulsa, Okla.	1,640	3,657
Pace, Geo. L., Wichita Falls	1,581	3,641
Prairie Oil & Gas Co., Independence, Kan.	1,084,207	1,744,889
Pure Oil Co., Chicago, Ill.	1,084,188	1,657,205
Poor Boy Oil Co., Rockdale	964	2,129
Plummer, W. A., Wichita Falls	1,186	2,609
Priddy, Walter M., Wichita Falls	11,176	23,693
Penn, Robert R., Dallas	697	1,530
Petroleum Producers Co., Wichita Falls	179,532	413,425
Prairie Oil & Gas Co., Independence, Kan.	77,957	121,015
Pace & Ward, Breckenridge	2,190	4,643
Pitzer & West, Breckenridge	28,251	65,260
Paggi, Chas. & Co., Beaumont	5,269	7,376
Prescott Phoenix Oil & Gas Co., Wichita Falls	1,658	3,484
Payne, F. G., et al, Wichita Falls	2,919	6,859
Pois, M., Trustee, Waggoner et al, Wichita Falls	8,224	19,169
Preston Oil & Gas Co., Brownwood	371	788
P-M Drilling Co., Ross & Samuel and A. J. Farley, Chelsea, Okla.	419	954
Phillips & Milam, Chelsea, Okla.	137	306
Plains Production Co., Wichita Falls	11,591	28,759
Quakins Petroleum Co., Ranger	4,880	11,651
Quincy Oil Co., Electra	146	336
Ruff, W. L., Wichita Falls	1,771	4,639
Ross & Slicker Oil Co., Ft. Worth	1,239	2,730
Rayzor, J. P., Wichita Falls	349	752
Reelin Gas & Oil Co., Carthage	771	1,428
Robinson, Arthur D., Dallas	7,630	19,616
Rubsam & Hunter, Wichita Falls	4,757	11,244
Roberts, M. C. & S. G., Dallas	424	482
Ramming, Staley & Ramming, Wichita Falls	874	1,945
Ramming & Saunders, Wichita Falls	4,693	11,069
Ramming, W. F., Wichita Falls	41	94
Ramming, R. W., Wichita Falls	6	14
Reclamation Co., The, Ft. Worth	11,976	25,506
Ruby Oil Co., Minerva	248	549
Rentex Oil Co., San Antonio	10,532	19,652
Rowe, J. G., Wichita Falls	4,006	7,577
Rountree, Ramsel & Kemp, Rockdale	1,160	2,617
Rountree, White & Simpson, Rockdale	3,611	8,344
Relief Oil Co., Amarillo	51,541	76,249
Rountree & Simpson, Rockdale	239	557
Rainer & Bailey, Wichita Falls	2,813	6,554
Rockdale Jr. Oil Co., Rockdale	1,877	4,223
Ross Bros., Wichita Falls	1,970	4,516
Rowe, M. D., Wichita Falls	1,470	3,429
Sinclair Oil & Gas Co., Houston	120,539	178,062
Rio Bravo Oil Co., Houston	1,794,472	2,786,152
Rosenberg, Jacob, Tulsa, Okla.	197	419
Rosenberg, Jacob, Trustee, Tulsa, Okla.	53	111
Roeser & Pendleton, Inc., Ft. Worth	572,843	1,229,419
Rio Grande Petroleum Corp., Houston	5,580	6,975
Rycade Oil Corp., Houston	116,997	167,139
Roxana Petroleum Corp., St. Louis, Mo.	465,738	732,564
Root & Rhodes, Eastland	9,940	24,140
Root, C. M., Eastland	4,395	9,775
Root-Rhodes et al, Eastland	54,977	127,719
Root, C. M. et al, Eastland	2,416	5,185
Russell & Wilson (Prideaux Lease), Wichita Falls	2,424	4,939
Ruyle Farm Oil Co., Wichita Falls	9,627	23,256
Rockdale Development Co., Inc., Rockdale	1,568	3,377
Rex Petroleum Corp., Orange	42,144	59,436
Ross Segunda Oil Co., Laredo	1,072	1,395
Ryan Consolidated Pet. Corp., Bartlesville, Okla.	99,919	191,046
Ruthada Oil Co., Oklahoma City, Okla.	21,871	29,227
Ross Amigos Oil Co., Laredo	10,868	13,585
Republic Production Co., Houston	723,792	1,030,689
Reiter-Foster Oil Corp., Wichita Falls	9,626	20,513
Rosson-Thomson, Mexia	9,289	20,615
Roamer Oil Co., Wichita Falls	93	238
Red Bank Oil Co., Tulsa, Okla.	49,074	111,473

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Reinhart, M. J., Trustee, Oklahoma City, Okla.	869	1,953
Robinson, O. D., Pittsburgh, Pa.	2,036	3,461
Rockwell, J. A., Warren, Pa.	3,502	7,643
Ray & Massie, Wichita Falls	30,129	71,569
Russell-Sanderson Oil Co. No. 3, Ft. Worth	1,016	2,255
Red River Oil Co., Tulsa, Okla.	16,613	37,264
Robert Oil Corp., Breckenridge	16,700	37,850
Ridgeway, G. R., Wichita Falls	1,360	2,898
Rhodes & Highers, Breckenridge	8,024	17,173
Rhader & Carey, Wichita Falls	4,203	8,868
Ray Featherstone Oil Co., Inc., Wichita Falls	2,858	6,568
Seybert Bros. & Barger, Mooringsport, La.	2,354	5,361
Stoops, J. P., Ranger	299	583
Sedwick Oil Co., Tulsa, Okla.	13,494	27,189
Silk, Bullington & Clark, Wichita Falls	9,619	12,024
Skia-Tex Petroleum Co., Skiatook, Okla.	59,110	74,736
Schulz & Pois, Wichita Falls	1,172	2,706
Strip, Geo. Beggs, Ft. Worth	3,050	7,765
Smith, E. L., Oil Co., Mexia	104,713	229,712
Swanner, Jno. L., Wichita Falls	3,439	7,565
Swicegood, F. L., Tr., Eastland	189	441
Somerset Oil Co. of Mass., Easthampton, Mass.	95	141
Schafner, E. N., Cross Plains	257	606
Schafner, E. N. & J. F., Cross Plains	915	2,241
Simms Oil Co., Dallas	486,087	982,020
St. Louis Oil & Dev. Co., Wichita Falls	454	1,050
Shaw, Fox & Adams, Burkett	3,381	5,985
Superior Oil Co., Superior, Wis.	369	.....
Salado Oil Co., San Antonio	2,108	4,064
Supreme Oil Co., Orange	9,022	12,632
Sunburst Oil Co., Amarillo	63,074	75,644
Sheldon, W. J., Electra	7,201	16,927
Stroube & Stroube, Corsicana	70,321	152,957
Southern Crude Purchasing Co., Shreveport, La.	6,800	6,800
Stock, H. I., Cisco	5,642	13,949
Schermerhorn Oil Co., Tulsa, Okla.	2,835	5,776
Staley Mashburn Oil Co., Wichita Falls	354	763
Silurian Oil Co., The, St. Louis, Mo.	4,438	10,068
Stribling, J. C., Sour Lake	1,036	2,072
Stafford & Hays, Box 577, Graham (9-30-26)	2,061	3,305
Shamrock Pet. Co., Box 487, Wichita Falls	26,240	51,120
Snider, C. W., 1212 City Natl. Bank Bldg., Wichita Falls	2,271	5,784
Skelly Oil Co., Skelly Bldg., Tulsa, Okla.	710,734	775,030
Sun Oil Co., Box 953, Dallas	764,467	1,273,757
Scott & Britton, Graham	228	480
Superior Oil Prod. Co., 208 E. Main, Lexington, Ky.	2,383	5,399
Speed, C. D., 1114 West 5th St., Corsicana	236	515
Summerfield Oil Co., 810 Mayo Bldg., Tulsa, Okla.	320	701
Sunny Jim Oil Co., 517 Central Nat. Bank., Tulsa, Okla.	195	361
Sinclair Oil & Gas Co., Box 2026, Tulsa, Okla.	55,044	127,298
Smith, J. L., Smith Bldg., Amarillo	18,909	23,631
Smith & Bynum, Smith Bldg., Amarillo	13,177	16,471
Sunrise Oil Co., Amarillo	400	500
Shaw & Rathke, Wichita Falls	43,461	99,653
Security Drilling Co., Wichita Falls	2,057	5,320
Snowden & McSweeney Company, New York, N. Y.	54,684	130,057
Swensondale Oil Co., Caddo	12,873	28,000
Staley, J. I. & Co., Wichita Falls	7,250	16,567
San Bernard Oil Co., Beaumont	3,238	4,533
Somerset Oil Co., San Antonio	1,638	2,739
Shaw, Archie, Coleman	14,743	27,278
Staley, Wynne & Co., Wichita Falls	66,458	83,489
Shuler-Davies & Co., Brownwood	3,513	6,397
Schaffner-Wilson et al, Wichita Falls	11,824	29,115
Sitrin, Sam & Morris, Tulsa, Okla.	368	751
Stephens Oil Co., Sour Lake	551	772
Shasta Oil Co.-Apple-Brandeberry Oil Co. and F. C. Grebin, Wichita Falls	5,039	10,650
States Oil Corp., Eastland	86,174	208,464
Stovall, E. C., Graham	2,875	6,568
Shertzer Bros., Dewey, Okla.	12,546	26,552
Sigler Oil Co., Wichita Falls	1,832	3,626
Sink, Joel, Corsicana	181	377
Silk, W. W., Wichita Falls	304	654
Slick, T. B., et al, Oklahoma City, Okla.	19,131	47,269
St. Marys Oil & Gas Co., St, Marys, W. Va.	19,354	40,230
Shasta Oil Co., Clifford Moores et al, Wichita Falls	5,342	12,230
Smith-Hanlon, Inc., Tulsa, Okla.	116	230
Stephenson, Rex-Tex Oil Co. and Py-Tex Oil Co., Winchester, Ky.	25,601	58,882
Schoolfield, R. E., Wichita Falls	248	534
Smith Oil Corp., Nacogdoches	392	832
Seaboard Oil & Gas Co., Wichita Falls	42,817	98,160
Stidham & Thrasher, Electra	8,940	21,654
Shade & Whittaker, Sweetwater	149	362
Strelsky & Gambell, Rockdale	756	1,980
Staley, J. A. Wichita Falls	4,750	11,263
Senter, E. G. Jr., Dallas	76	181
Schaffner & Ramsey, et al., Cross Plains	1,226	3,398
Shappell Oil Co., Wichita Falls	94,775	221,227
Shackelford Oil Co., Putnam	3,464	7,309
Strawn Petroleum Co., Denver, Colo.	6,871	16,469
Swastika Petroleum Corp., Wichita, Kans.	1,055	2,453
Southern Petroleum Exploration, Inc., Abilene	590	885
Saunders, Jno. R., Wichita Falls	41	94
Strelsky & Gambill, Rockdale	238	489
Somerset Crude Oil & Refg. Co., Somerset	5,264	9,418
Sheman Oil & Gas Co., Pittsburgh, Pa.	128	267
Skinner, E. W. Oil Co., Saratoga	3,041	4,258
Stella Oil Co., Beaumont	9,962	13,057
Standard Oil Land & Leasing Co., Electra	320	746
Strauss, Allen, Oil Co., Wichita Falls	3,271	7,808
Sircovich & Thomas, Houston	2,027	3,157
Sessions, I. P., Rockdale	501	1,135
Star Drilling Co., Wichita Falls	9,668	23,061
Sheffield, Telchow & Conkling, Houston (9-30)	467	871
Sheffield, Telchow & Conkling, Houston	1,035	1,439
Saratoga Oil Co., Wichita Falls	2,813	6,680
Schlicher Oil Co., Beaumont	1,025	1,435
Stull R. O., Wichita Falls	20	43
Sindorf & Sindorf, Caddo	1,201	2,445
Scarbough, W. A., Burkburnett	1,928	6,190
Summit Oil Corp., Amarillo	26,741	33,426
Southern Exploration Co., Houston	5,515	8,557
Stafford & Hayes, Graham	1,021	1,543
Spring Creek Oil Co., Amarillo	50,404	64,078
Tidwell, R. V. Trustee, Whittenberg Lease, Graham	4,471	9,827
Tidwell, R. V. Trustee, Kisinger Lease Graham	768	1,653
Tidwell, R. V. Trustee, Castello Lease, Graham	861	1,861
Tidwell, R. V. Trustee, Hughes Lease, 726-75	1,621	.....
Tidwell, R. V. Bowers Lease, Graham	792	1,768
Texas Fidelity Oil Corp., Louisville, Ky.	45,202	102,073
Thompson & McKinnis, Ranger	1,019	2,538
Thaxton, W. H. Estate, Austin	305	666
Travelers Oil Co., Amarillo	47,520	57,222
Tolbert, Jonnie, Oil Co., Midlothian	2,731	6,317
The Tulsa Co., Wichita Falls	3,646	7,871
Talley, Oscar Trustee, Burkburnett	335	800
Thomson & Morrison, Colorado	2,000	3,149
Triangle Oil Co., Wichita Falls	714	1,652
Texota Petroleum Co., Electra	600	1,296
Texas Consolidated Oil Co., San Francisco, Cal.	15,459	35,578
Teatsorth, L. et al., Eastland	4,355	9,963
Transcontinental Oil Co., Tulsa, Okla.	6,723	14,127
Transcontinental Oil Co., Tulsa, Okla.	503,080	1,137,911
Tillery, L. J., Oil, Inc., Beaumont	10,148	14,358
Tidal Oil Co., Tulsa, Okla.	136,823	282,858
Tidal Osage Oil Co., Tulsa, Okla.	13,723	30,641
Travis Oil Co., Ft. Worth	123	235
The Texas Company, Houston	2,712,872	4,892,286
Timblin, W. E., Wichita Falls	173	404
Two Republic Oil & Gas Co., Laredo	10,883	13,604
Texas Southern Oil & Devp. Co., San Antonio	1,889	3,680
Triangle Oil Co., Amarillo	177,070	224,433
Triangle Oil & Gas Co., Rockdale	5,184	11,263
Tannehill, L. B., Albany	28,407	59,423
Texas Pacific Coal & Oil Co., Thurber	192,070	427,301
Other Companies for the—		
Texas Pacific Coal & Oil Co., Thurber	110,635	248,057
Tripplehorn, J. W. & D. R., Ft. Worth	3,351	7,445
Tyson Oil Co., Sour Lake	869	1,216
Taylor-Sibley Syndicate, Dallas	2,223	5,058
Texas Exploration Co., Houston	5,582	7,915
Tucker & Langford, Inc., Wichita Falls	67,164	151,742
Texon Oil & Land Co. of Tex., Big Lake	789	1,429
Tucker & Fox, Dallas	4,620	10,016
Tucker, W. B., Dallas	2,367	5,032
Texas Oil Corp., Dallas	159	338
Tholl Oil Co., Beaumont	7,642	17,918
Tegler, T. E., San Antonio	375	562
Theis Oil Co., Sour Lake	5,277	7,388
Trimount Petroleum Co., Shreveport, La.	9,976	23,457
Texas Electric Co., Columbus, O.	403	951
Thomasson, E. M. & Co., Inc., Denver, Colo.	2,147	5,490
Trans-Bay Oil Co., Galveston	60	84
Tillman, J. W., Humble	244	342
Texas Unity Oil Co., Dallas	8,918	21,382
Texas Development Co. et al., Eastland	512	1,026
Trinity Production Co., Wichita Falls	771	1,727
Texas Petroleum Development Co., Cameron	9,144	20,144
Ungren & Frazier, Putnam	474	935
United Oil & Fuel Co., Philadelphia, Pa.	2,086	2,921
U. C. Texas Oil Corp., Dallas	3,934	8,144
Upham Gas Co. of Texas, Mineral Wells	427	1,265
Unity Oil Co., Beaumont	31,552	43,225
Union Production Co., Inc., Rockdale	6,577	14,559
Unice & Carpenter, Houston	33,813	63,972
Unice, Chas. J., Houston	1,847	2,663
United Production Co., Inc., Wichita Falls	1,592	3,712
Urban, Andrew, Abilene	1,731	3,987
Val Verde Oil Co., Del Rio	2,611	4,527
Virginia Oil Ass'n., Ft. Worth	3,949	9,129
Vacuum Oil Co., Houston	18,073	25,620
Vancleave Trust, Baltimore, Md.	1,223	2,806
Vergate Oil Co., Tulsa, Okla.	3,872	8,059
Valley Oil Co., Wichita Falls	5,070	11,407
Ward & Fuller, Wichita Falls	147	343
White, C. N., San Antonio	12,371	26,220
Webb Oil Co., Humble	4,399	6,161
West Production Co., Houston	11,281	15,793
Woods & Bennett, Humble	7,924	11,095
White, James H., Wichita Falls	1,646	3,662
Watson, M. B., Ft. Worth	1,000	1,500

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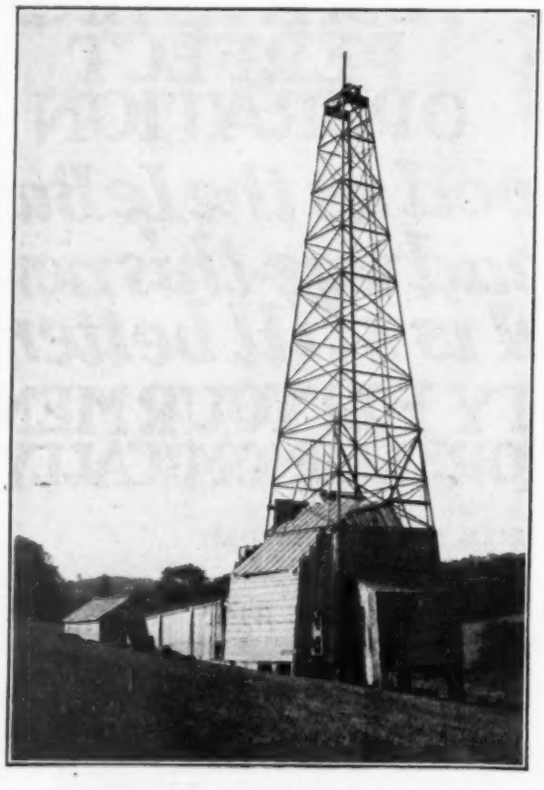
Name and Address—	Barrels	Value
Watkins, J. A., Wichita Falls	587	1,392
Wampem Oil Corp., Dallas	3,861	9,067
Weed-Gayle Oil Co., Beaumont	74,046	103,936
Wilson Drilling Co., (K.K.B.) Wichita Falls	2,331	5,424
Wilson Drilling Co., (Comet) Wichita Falls	5,081	11,740
Wilson Drilling Co., (K.K.A.) Wichita Falls	2,703	6,270
Wilson Drilling Co., ((Snedeker) Wichita Falls	466	933
Wampoo Oil Co., Rockdale	5,229	10,981
Witcher & Michel, Wichita Falls	367	857
Wilson Drilling Co., (Rathke) Wichita Falls	5,161	11,828
Waggoner Refg. Co., Inc., Electra	15,422	30,514
Witcher, Annie L. (Guardian) Wichita Falls	3,291	8,075
Wichita Production Co., Wichita Falls	19,332	45,444
Weber, Howard, (NE¼ of Blk 83) Bartlesville, Okla.	1,680	3,358
Weber, Howard, (SW¼ Blk. 83) Bartlesville, Okla	2,296	4,561
Weber, Howard, (SE¼ of NW¼ Blk. 88) Bartlesville Okla.	547	1,132
Weber, Howard, (N½ of S½ of SE¼ Blk. 88) Bartlesville, Okla.	1,317	2,610
Weber, Howard, (S½ of NE¼ of SW¼ Blk. 88) Bartlesville, Okla.	960	1,899
Weber, Howard, (W½ of NE¼ of SW¼ Blk. 88) Bartlesville, Okla.	603	1,233
Waid, C. A. Cisco	2,197	5,289
Wootten, Reed, et al., Graham	1,370	3,052
Wickett, F. H., Shreveport, La.,	2,204	2,755
Weaver & Pois, Wichita Falls	8,784	20,145
Williamson & Veale, Dallas	14,763	38,171
Wichita Petroleum Co., Tulsa, Okla.	2,730	6,028
Wheelock & Collins, Corsicana	37,867	82,389
Weldon Oil Co., Saratoga	9,423	10,982
Weiler, J. G., et al., Cross Plains	3,303	8,053
Walker, B. S., Breckenridge	1,855	3,821
Wo-Mac Oil Co., Wichita Falls	5,675	11,643
Williams, Jno. H., Dallas	6,877	15,106
Wilkins, L. A., Burkburnett	1,653	3,605
White & Duncan, Wichita Falls	4,242	8,952
Westervelt-Noble, et al., Oklahoma City, Okla.	5,707	12,944
Wilson Broach Co., Beaumont	18,947	25,245
Witherspoon Oil Co., San Antonio	65,103	129,299
Wilson, Edward R., Oklahoma City, Okla.	2,450	5,608
White Eagle Oil & Refg. Co., Kansas City, Mo.	269,104	342,240
Wilcox, H. F. Oil & Gas Co., Tulsa, Okla.	306,696	551,776
Why Not Oil Co., Mexia	12,192	27,739
Western Oil Corp. of Texas, Wichita Falls	34,340	64,227
Warren-Hayes Oil Corp., Cisco	654	1,537
Williams, J. F., et al., Cisco	875	1,820
Wood, H. J., Trustee, Cisco	571	946
Wentz, L. H. (Oil Division) Ponco City, Okla.	27,944	45,930
Wood-Benton Lesh & McCall, Nocona	24,290	39,177
Weisman, S., McKinney	25	43
Western Oil Sales Corp., Wichita Falls	1,444	3,329
Wilson-King et al., Wichita Falls	20	43
Westheimer & Daube, Ardmore, Okla.	1,147	2,467
Woodburn Oil Corp., Dallas	11,004	24,701
Wallace, Dr. Chas. Wm. and wife, Wichita Falls	46,530	105,366
West, J. H., Cisco	9,969	23,602
Wooldridge, Good, Beaumont	1,908	4,703
Whaley Mineral Realty Trust, Ft. Worth	4,368	9,709
Ward, Mrs. Fay R., Dallas	140	284
Whitehill, B. F., Tulsa, Okla.	7,396	16,547
Wolf, A. T. & Son, Wichita Falls	4,347	9,371
Whitman, G. W., Wichita Falls	350	716
Williams, Burt, Wichita Falls	1,017	2,125
World Oil Co., Ft. Worth	8,690	11,071
West Adams Petroleum Corp., Eastland	25,497	56,101
Wright & Dauhe, Cisco	16,473	37,914
Wise & Jackson, Sapulpa, Okla.	4,339	9,108
Waggoner, R. M., Special, Wichita Falls	3,242	7,389
Wills Oil Co., Rockdale	1,819	3,734
Yuba Oil Refg. Co., Nacogdoches	223	446
Yount-Lee Oil Co., Beaumont	3,946,246	6,105,295
Beatty, F. A., Ft. Worth	521	1,089
Bay Oil & Gas Co., Mirando City	1,263	1,575
Brown, Mrs. Carrie L., et al., Orange	47,658	66,721
Bradley, E. L., Raymondville	259	603
Cranfill Bros. Oil Co., Wichita Falls	1,147	2,475
Caltex Oil Co., Spokane, Wash.	626	1,027
Canyon Oil Co., Seminole, Okla.	299,043	303,729
Coons & Hotchkiss, Graham	6,084	15,374
Dalton Bell Oil Co., Palo Pinto	564	1,156
Hammond, J. G., Wichita Falls	283	671
Hanover Co., Inc., Wichita Falls	3,111	6,517
Lytle, C. F., Mexia	17,741	36,051
McLester Oil Co., Eastland	17,992	44,982
Oil Operators Trust, Ft. Worth	8,273	13,186
Omilak Oil Co., Spokane, Wash.	415	715
Oasis Oil Co., Wichita Falls	754	1,456
Ohio Somerset Oil Co., San Antonio	2,020	2,868
Proctor Oil Co., Wichita Falls	888	2,337
Regna Oil Co., Saratoga	5,271	6,364
Alford Oil Co., Dallas	325	702
Bailey, Mrs. Fannie Wichita Falls	2,555	5,159
Columbia Petroleum Co., Mirando City	32,090	40,112



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The O'Brien Steel Derrick is a real derrick. It is made of structural steel—a material whose safe loads, stresses, etc., can be accurately figured—a derrick of known dependability—a derrick that has proved its worth for twelve years. The strength of a wood derrick, however, is an unknown quantity and not in keeping with the scientific demands of this day and age.

The O'Brien Derrick is the result of many years of practical experience combined with the knowledge of expert structural engineers. It is strong and rugged—fireproof—windproof—easily erected and easily removed to a new location. The exclusive feature—double spliced joints—makes a socket that holds the legs while bolting up. It is not a cheap derrick but it is an economical one. Cheap equipment is generally the most expensive in the long run. The purchase of an O'Brien Derrick is an investment in indefinite use and practical indestructibility.

O'BRIEN Steel Construction Company, Inc.

WASHINGTON, PENNA.

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RIG EQUIPMENT COMPANY, 1524 So. St. Louis St., Tulsa, Okla.

Carried in Stock at Earlsboro, Oklahoma.

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for a
STRAIGHT LIFT
6 FOOT
STROKE

THE
NATIONAL SUPPLY
COMPANIES

Say you saw it in The OIL WEEKLY

PERMITS GRANTED FOR NEW WELLS

Weekly Comparison of New Wells

Following is a condensed table giving a comparison of permits or locations made for new wells during the past year in Kansas, Oklahoma, Arkansas, Louisiana, Texas, California and the Mountain States:

	Week Ending Feb. 19	Previous Week	Total This Month	Total This Year	This Week Last Year	This Month 1926	Total Same Date 1926	Year Total 1926
Arkansas	17	3	29	70	28	67	197	940
California	29	30	90	213	26	91	327	1,273
Louisiana	22	16	53	136	23	83	253	1,318
Kansas	38	26	90	233	59	114	358	1,745
Oklahoma	118	78	268	818	100	256	874	5,165
Texas	294	284	755	1,840	201	523	1,754	12,158
Mountain States	15	6	34	87	..	..	..	....
Total	533	443	1,319	3,397	437	1,134	3,763	*22,599

*Mountain States omitted.

CALIFORNIA

Belridge — Carneros Oil Co.'s No. 46, 30-28-21.

Brea-Olinda—Union Oil Co.'s Stearns 70, 1-3-10.

Elk Hills—Union Oil Co.'s Elk Hills 19, 26-30-24.

Huntington Beach—Standard Oil Co.'s P. E. 5, 10-6-11. Leroy Moore's No. 1, 10-6-11.

Inglewood — Standard Oil Co.'s Baldwin-Cienega 52, 17-2-14.

Kern County—Howard S. Mountford's No. 1, 18-27-19.

Kern River—Barnsdall Oil Co.'s Fortine 1, 30-27-28. George F. Getty's Lehnhardt 2, 14-28-27.

Long Beach—Signal Sydn.'s No. 3, 19-4-12. California Pet. Corp.'s Foster Two 3, 19-4-12.

Lost Hills—Universal Cons. Oil Co.'s No. 48, 32-26-21.

Midway—Standard Oil Co.'s No. 21, 7-32-24. Frank D. Gore Corp.'s No. 2, 34-20-22. General Pet. Corp.'s Buena Vista 12, 32, 31-24.

Mt. Poso—Union Oil Co.'s S. & M. 3, 5-27-28.

McKittrick—McKittrick Hills Oil Co.'s No. 2, 18-30-22.

Montebello—St. Helens Riverside Properties' Monterey 14, 2-2-12. Monterey 15, 2-2-12.

Piru—Schell & Jennings' No. 10, 32-4-18.

Richfield—C. C. M. O. Co.'s No. 7-R, 33-3-9; No. 8-R, 33-3-9.

Rosecrans—California Pet. Corp.'s Sutton 1, 34-2-14; Armour Morse One No. 1, 35-2-14; Toms 1, 35-2-14.

Seal Beach—Associated Oil Co.'s Bryant 7, 11-5-12. Marland Oil Co.'s Bixby 13, 2-5-12.

Temblor—Max L. Pray's No. 1, 1-29-20.

Ventura—G. J. Magenheimer's Hartman 1-A, 22-3-23.

ARKANSAS

Columbia County—Colquitt & Thomas' Duffer 1, 23-18-19, 200 ft S and 360 ft W of NEc SE¼. Mitchell et al's Franks 1, 25-19-22, 300 ft S and W of NEc NE¼ SW¼.

La Fayette County—J. R. Brown's Thomas 1, 15-16-23, 100 ft N and E of SWc NW¼ NE¼.

Ouachita County—Humble O. & R. Co.'s Farris 6, 34-15-15, center of north line NW¼ NW¼.

Union County—Imperial O. & G. Co.'s Murphy 5, 9-16-15, center of west line SW¼ NE¼; Murphy 6, 9-16-15, SEc W½ SW¼ NE¼. E. M. Jones' Murphy 4, 17-16-15, 200 ft S and E of NWc NE¼ NE¼. Keen & Woolf's Murphy 4, 9-16-15, center E line SE¼ NW¼. Lion O. & R. Co.'s Flenniken A-9, 10-16-15, 800 ft S and 150 ft E of NWc SW¼ NE¼; Graves 9, 3-16-15, NEc SE¼ SW¼; H. Murphy 6, 9-16-15, center of south line NE¼ NW¼. Louisiana Oil Ref. Corp.'s Murphy B-3, 9-16-15, 150 ft S and W of NEc W½ NW¼ SE¼. O. G. Murphy's T. G. Murphy 3, 9-16-15, SWc SW¼ SE¼. Natural Gas & Fuel Corp.'s Flenniken 4, 8-16-15, 680 ft N & 150 ft W of SEc or section; Murphy F-1, 9-16-15, 150 ft S and E of NWc W½ NW¼ NE¼ SW¼. Ohio Oil Co.'s Murphy 7, 9-16-15, SWc E½ SW¼ NE¼. Stewart et al's Murphy 7, 9-16-15, NWc E½ NE¼ SW¼.

KANSAS

Butler County—Empire Gas & Fuel Co. No. 1 Herman, in the northwest corner of the northeast of the southwest of 20-26-3e. Phillips Petroleum Co. No. 1 Marmane, in the southwest corner of the southeast of the northwest of 20-26-3e; No. 1 Nicholasin, in the southeast corner of the southwest of the northeast of 33-26-6e. Rogers et al No. 12 Drum Bitler, in the northwest corner of the northeast of the southeast of 26-6-8e; No. 13 Drum Bitler, in the northeast corner of the southwest of the northwest of 29-26-8e; Drum Bitler "B", in the northwest corner of the southwest of of the northeast of 31-26-8. Davis, Hazlett et al No. 1 Lewis, in the northwest corner of the southwest of 3-27-6e. Johnson et al No. 2 Beedles, in the northeast corner of the southeast of the southwest of 4-27-6e. Phillips Petroleum Co. No. 1 Edwards, in the southwest corner of the southeast of the northeast of 4-27-6e. Rosenthal, Lassen et al No. 1 Shaffer in the northwest corner of the southwest of the southeast of 4-27-6. Mid-Kansas Oil & Gas Co. No. 1 Gibson, in the northwest corner of the southwest of the southeast of 3-28-6.

Chase County—Preston & Pasewalk No. 2 Neibert, in the center of the northwest of the northeast of 36-18-6. Empire Gas & Fuel Co. No. 8 Lipps, in the center of the northwest of the northwest of 32-18-7.

Cowley County — The Texas Co. No. 1 Willie, in the northwest corner of the northeast of 18-31-3. Empire Gas & Fuel Co. No. 2 "C" Eastman, in the southeast corner of of the northeast of the northwest of 6-31-8.

Elk County — Kansas Fuel Oil Co. No. 1 Keck, in the northwest corner of the northeast of the southwest of 17-29-10e; Kismet Oil Co. No. 1 Reid, in the southwest corner of the southeast of the northeast of 8-29-11. Union Gas Corporation No. 7 Leffingwell, in the southeast corner of the northeast of the southwest of 14-31-10; No. 8 Leffingwell, in the southeast corner of the northeast of the southwest of 14-31-10; No. 9 Leffingwell, in the northeast corner of the southeast of the southwest of 14-31-10.

Greenwood County—Empire Gas & Fuel Co. No. 4 Garvett, in the northwest corner of the southeast of the northeast of 14-22-11e; No. 12 Duby, in the southwest corner of the northwest of the northwest of 23-22-11e. Roxana Petroleum Co. et al No. 2 Sheets, in the northwest corner of the northeast of the northeast of 23-22-11e. Skelly Oil Co. et al No. 19 Wick, in the northeast corner of the southwest of the northwest of 27-22-11e. Bement Oil Corporation and Amerada Petroleum Corp. No. 1 Swanson, in the northeast corner of the southeast of 9-22-12. Empire Gas & Fuel Co. No. 5 Edwards, in the northeast corner of the northwest of the northwest of 21-23-11; No. 6 Edwards, in the northwest corner of 21-23-11e. McKinnis & Manhattan Oil Co. No. 2 Mock "A" in the southeast corner of the northwest of the northeast of 36-24-10. Harwood, Winters and Marland Oil Co. No. 1 Ladd, in the northeast corner of the northwest of 35-25-8e. McGinnis et al No. 1 Hammond, in the southwest corner of the northwest of 10-25-10e. Callahan and Ainsworth No. 1 Deets, in the northeast corner of the southwest of 11-25-11e. Mendenhall et al No. 1 Gilroy, in the southeast corner of the northwest of 5-25-13e.

McPherson County — Otstot et al No. 1 Okerland, in the southwest corner of the northwest of the southeast of 22-18-2.

Marion County—Tulsa Oil Co. et al No. 1

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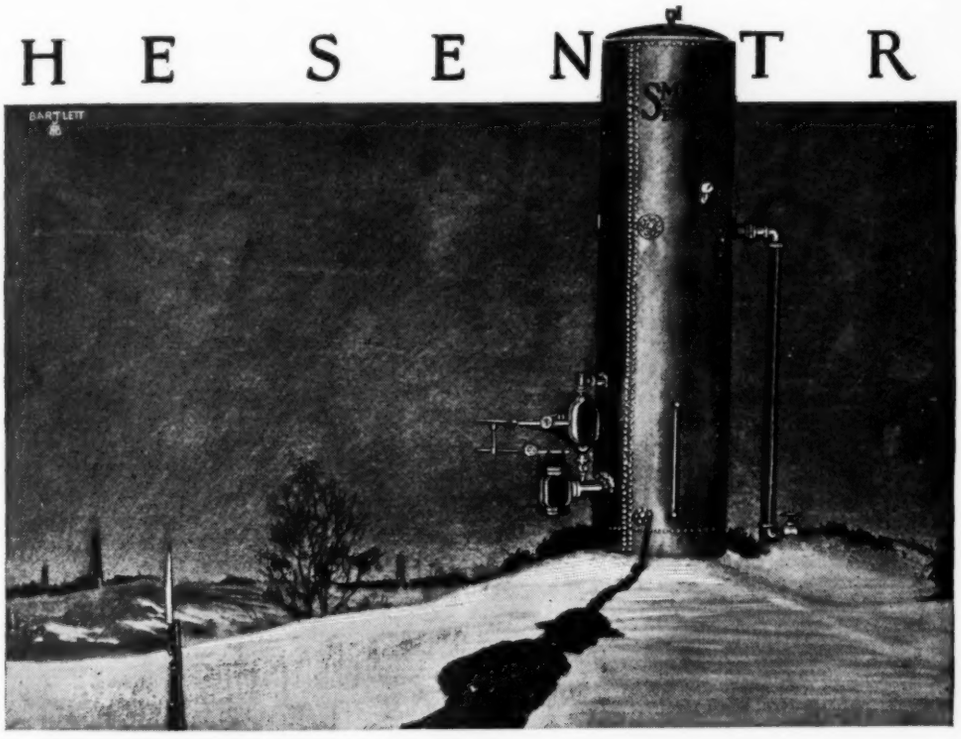
THE SENTRY



. . . that never sleeps.

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Beside the fact that it brings in increased revenue by sending the crude to your stock tanks at highest possible gravity; and saving oil that would otherwise have blown off with the gas; it also is the guardian of safety for it does away with the fire hazards of free gas, saving this gas for your consumption or for the manufacture of Natural Gasoline.

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TEXAS OFFICES:
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Houston, Texas
1414 F. & M. Bank Bldg.,
Fort Worth, Texas

Harrison, in the northeast corner of the southeast of 19-20-4e. Cameron et al No. 1 Burnes, in the northwest corner of the northeast of the southwest of 2-22-3e.

Rice County—Prairie Oil & Gas Co. No. 4, in the northeast of the southwest of the northwest of 35-20-6.

Sumner County — Roxana Petroleum Corp. No. 4 River Bed, in the center of the west line of the southwest of the southeast of the northwest of 25-31-2. Roxana Petroleum Corp. No. 4 Mason, in the southwest corner of the southeast of the northwest of 25-31-2e.

MOUNTAIN STATES

COLORADO

Left Hand Oil Co.'s No. 1, NW¼ 34-3n-70. Continental Oil Co.'s No. 1, SW¼ 1-9-79; No. 1, SE¼ 2-9-79.

NEW MEXICO

Maljamar Oil & Gas Co.'s No. 1, 15-17-32. Clark & Grimm's No. 1, 3-17-27. Empire Gas & Fuel Co.'s No. 1B, NE¼ 34-17-27; No. 2A, ST¼ 35-17-27; No. 3 A, NW¼ 2-18-27. Midwest Refining Co.'s No. 1, NW¼ 30-8-31. Texas Production Co.'s No. 1, SE¼ 34-16-31.

WYOMING

Ohio Oil Co.'s No. 7 Rock River, 2-19-78. Texas Production Co.'s No. 7, Maverick Springs, 26-6-101. Continental Oil Co.'s No. 44, Big Muddy, 9-32-76. Union Oil Co. of California's No. 1, Park county, NW¼ 22-47-101. Pilot Butte Oil & Gas Co.'s No. 2, Pilot Butte, 27-3-1.

TEXAS

Report of drilling permits issued for week ending Feb. 18, 1927. Lease or owner, acreage, well, survey, distance to lease lines or well.

Archer County — Magnolia Petroleum Co., Dalls, R. Darilek 9, 1582, TE&L sur, 300 ft S of No. 6. J. W. Noland, Box 1666, Wichita Falls, P. Browning 3, TE&L sur, 150 ft to E and 450 ft to S line. P. F. Gwynn et al, Harvey-Snider Building, Wichita Falls, Abercrombie-Taylor 1, B 57, Club Ranch sur, 150 ft to S and E lines. Mid-Kansas Oil & Gas Co., Tulsa, Okla., A. J. Lowe 2, 3, S. R. Crawford sur, 450 to S and E lines. Plains Production Co., Staley Bldg., Wichita Falls, L. F. Wilson 1, B 116, Club Ranch sur, 150 ft to N and E lines. Bridwell & Heydrick Oil Co., Wichita Falls, Abercrombie-Taylor 12, S 2, SPRy sur, 300 ft E of No. 10. C. G. Hart, Box 1451, Wichita Falls, G. W. Moses 1, S1, HT&B sur, 150 ft to S and E lines. Underwood Drilling Co., Harvey-Snider Bldg., Wichita Falls, Marland Oil 2, 1379, TE&L sur, 450 ft to N and 150 ft to W line; 3, 350 ft S of No. 2; 4, 450 ft to N and W lines. Christie & Maddox, Olney, J. M. Key 1, B 59, J. W. Harris sur, 150 ft to N and E liens. Riner & Bailey, Wichita Falls, L. F. Wilson 3, B 23, Amer. Trib. sur, 300 ft NE of No. 1. Golding & Cochran, Wichita Falls, C. A. Mangold 1, B 8, McKinney sur. 150 ft to N and W lines. N. O. Prideaux 14, J. Dorsey sur, 407 ft to E and 300 ft to S lines. Pandem Oil Corp., Wichita Falls, L. L. Hudson 9, B 80, J. W. Harris sur, 300 ft E of No. 8. Roxanan Pet. Corp., South Bend, D. L. Wolfe 1, G. W. Miles sur, 300 ft to E and 150 ft to S lines. J. A. Love 1, SPRy sur, 150 ft to N and W lines. D. L. Wolfe 1, G. W. Miles sur, 150 ft to S and E lines. Bridwell & Heydrick Oil Co., Wichita Falls, Abercrombie-Taylor 13, S 12, SPRy sur, 300 ft E of No. 9. Tidal Oil Co., W. T. Waggoner Bldg., Fort Worth, J. H. Turbeville 3, S 152, R. Carson sur, 300 ft W of No. 1. E. J. Stump & Co., Wichita Falls, L. McCrory 1, B 121, Amer. Trib. sur, 150 ft to N and E lines. T. F. Hunter, Wichita Falls, T. B. Wilson 5, S 12, H&TC sur, 300 ft S of No. 1. Rutis, Wood & Minton, Waggoner Bldg., Wichita Falls, S. Wilson 1, No. 2, SPRy sur, 150 ft to S and W lines. Gulf Production Co., Fort Worth, A. Pastusek 1, S 17, L. M. Meade sur, 150 ft to N and W lines. Golding & Cochran, Wichita Falls, H. O. Prideaux 12, J. Dorsey sur, 300 ft N of No. 4. Apple-Brandeberry & Greben, Wichita Falls, H. S. Griffin 1, S 13, PPCSL sur, 150 ft to S and E lines. Roxana Petroleum Co., South Bend, W. I. Pace 1, S 106 Club Ranch sur, 150 to S and E lines. J. L. Jackson 41, B 23, DCSL sur, 300 ft E of No. 40. Simms Oil Co., Dallas, J. Turbeville A18, S 172, R. Carson sur, 300 ft N of No. 16; A17, 300 ft S of No. 16. Burleson-Turbeville 8, B 142, R. Carson sur, 300 ft E of No. 6. Magnolia Petroleum Co., Dallas, L. Hudson 16, B 8, Wichita Falls, S. E. Oldham 17, E. Hubbell sur, 400 ft N of No 6. W. J. Grisham, Harvey-Snider Building, Wichita Falls, F. W. Kunkel 1, J. A. Self sur, 150 ft to S and E lines. E. B. Lawson, Nowata, Okla., L. F. Wilson 6, B 21, Amer. Trib. sur, 475 ft to E and 450 ft to S line.

Brown County—Arma Belle Oil Co., Cisco, W. H. Kilgore 9, No. 152, McClure sur, 900 ft NW of No. 8. Pandem & Gilman, Wichita Falls, J. M. Perry 2, B 36, J. G. Rhea sur, 300 ft S of No. 1. Barbara Oil Co., Box 774, Oklahoma City, Okla., A. E. Metts 4, Marr sur, 396 ft E of No. 3. Amerada & Mollendick, Cisco, H. H. Henslee 1, S 151, P. Cyrlong sur, 150 ft to S and W lines. West & H-Y Oil Co., Box 642, Fort Worth, J. W. Newton 23, R. Mitchell sur, 500 ft E of No. 17. Standard Production Co., Worth Bldg., Fort Worth, Boysen 2, S. H. Batten sur, 350 ft W of No. 1. Sinclair Oil & Gas Co., Fort Worth, J. H. Fry 17, S 622, G. Stubblefield sur, 550 ft to N and 200 ft to E lines; 18, 150 ft to N and E lines; 16, 400 ft S of No. 17. George Parker, Tulsa, Okla., J. Keesee 1, No. 3, P. Lewis sur, 1320 ft to E and 800 ft to S line. Amerada Petroleum Corp., Cisco, J. H. Fry 22, G. Stubblefield sur, 300 ft N of No. 13. Roxana Petroleum Corp., Cisco, J. P. Newton 5, S 150, N. B. Mitchell sur, 150 ft to N and 750 ft to E line; 6, 150 ft to S and E lines. Stout & Bradstreet, Cross Plains, W. A. Stout 7, No. 155, W. B. Smith sur, 1170 ft to N and 150 ft to W line. W. R. Bowden et al, Ranger, A. Williams 1, E.

Who's Who and What's What on this

10,000-ft. Test

THIS is Yount-Lee Fee No. 17 in Spindletop, and is the only well ever spudded in for a 10,000 foot test. The center of interest in the picture is the 6 foot core just removed from the split liner of our Perfection Core Barrel. This Core shows the exact formation at 5500 feet and is the fourth Core taken on this well, each time with 100% recovery.

The man in the foreground with the "A" on his coat is Mr. D. B. McDaniel, Contractor. Directly across from him, designated by the letter "B," is Mr. E. T. Rothwell, Vice-President and General Manager of the Yount-Lee Oil Company, owners of the well. And you have probably guessed that the chap directly behind Mr. McDaniel, wearing the million dollar smile, is "Cotton" Russell, the driller who took the Core.

These men like the Perfection Core Barrel because it is 100% efficient, and because the split liner, easily removed, permits the Core to be examined without disturbing it.

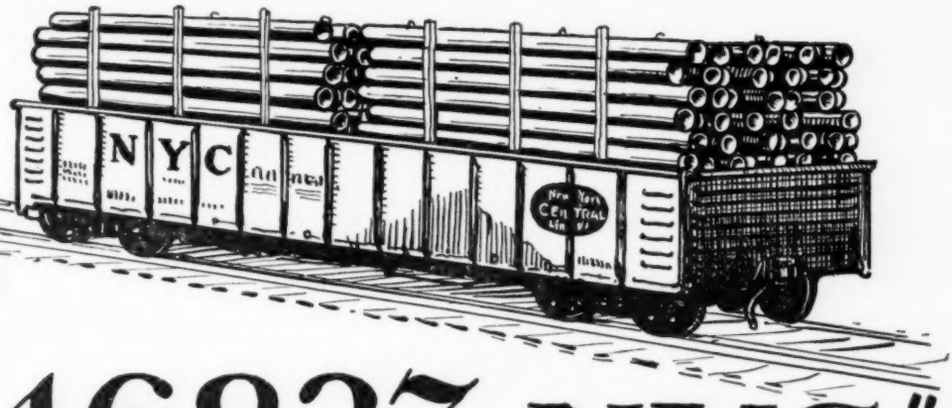
Oil City Iron Works, Inc.

MANUFACTURERS OF

PERFECTION CORE BARRELS

SHREVEPORT, LA.

Say you saw it in The OIL WEEKLY



"Car 346837 NYC"

IF you could have ridden Car 346837 N. Y. C. from St. Louis to Winfield, Kansas between January 21 and 26, you would have seen Greenspon service in action at its best. It was only a gondola-load of line-pipe, but it was wanted in a hurry—and our job was not done till that car reached the purchaser.

Car 346837 N. Y. C. left our yards at 12:30 A. M. January 21st on the Katy, for transfer to Santa Fe at Kansas City, thence to Winfield. Ahead of it the wires hummed with our requests for information of its progress. On the 22nd "N.Y.C. 346837 arrived Parsons 2:00 A.M. today." The load had shifted; it was rearranged and moved out, reaching Kansas City in time to be "delivered Santa Fe 2:00 P. M."

St. Louis, Jan. 21, 1927
To M. K. & T. Ry. Co.,
Boonville, Mo.
Parsons, Kansas.
Kansas City, Mo.
Car 346837 N.Y.C. Pipe for Winfield, Kansas routed Katy Kansas City Santa Fe. Out train 71 at 12:20 today. Advise by wire passing records. GREENSPON'S

Kansas City, Mo. Jan 21, 1927
N. Y. C. 346837 due here evening 22nd. Will advise.
C. L. LYONS, M. K. & T. Ry.

Boonville, Mo. Jan. 22, 1927
N. Y. C. 346837 pipe for Winfield, Kansas arrived Parsons 1:30 A.M. today.
J. F. HICKEY, Supt., M. K. & T. Ry.

Parsons, Kan. Jan. 22, 1927
Car 346837 N. Y. C. arrived Parsons 2:00 A.M. today load shifted necessary rearrange moved 12:50 P. M. reach Kansas City for transfer to Santa Fe about 7:00 P.M. date.
G. C. BYERS, Supt., M. K. & T. Ry.

Kansas City, Mo., Jan. 24, 1927
N. Y. C. 346837 delivered Santa Fe 2:00 P. M. yesterday.
C. L. LYONS, M. K. & T. Ry.

Kansas City, Kansas, Jan. 24, 1927
N. Y. C. 346837 from Katy 2:45 P. M. 23rd. Now on hand bad order will move tonight.
H. M. DUNCAN, Agent

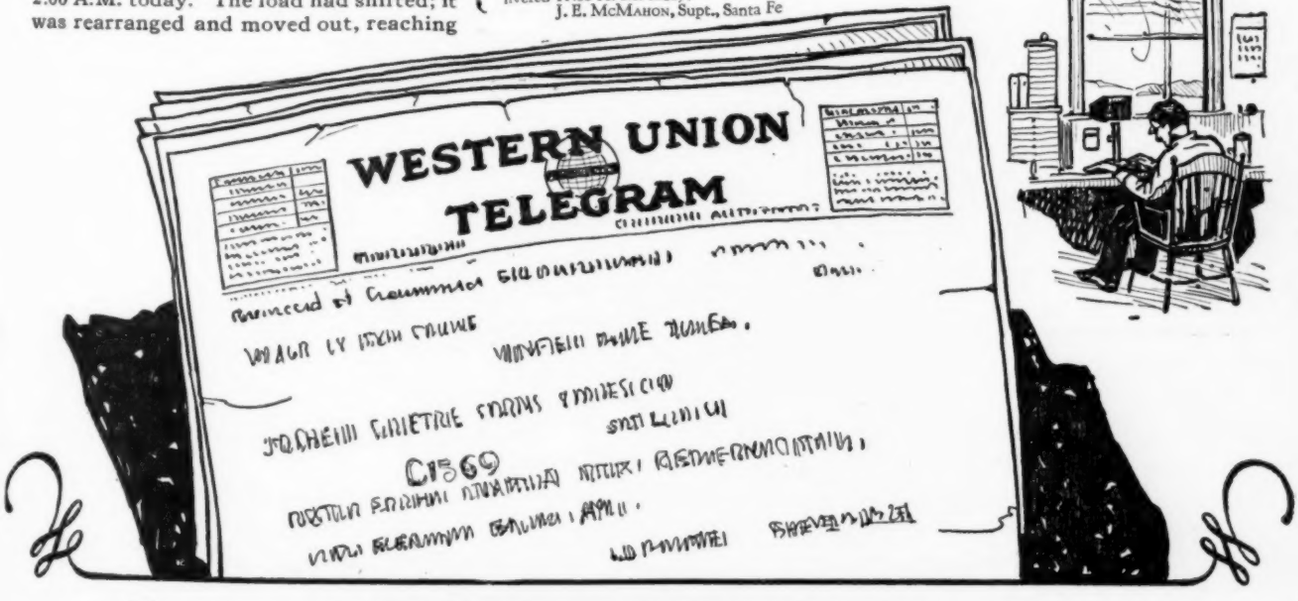
Newton, Kansas, Jan. 25, 1927
N. Y. C. 346837 will reach Winfield today.
H. B. LANTZ, Supt., Santa Fe

Arkansas City, Kansas, Jan. 26, 1927
N. Y. C. 346837 into Winfield and delivered 11:00 A. M. today.
J. E. MCMAHON, Supt., Santa Fe

On the 24th the Santa Fe reported from Kansas City: "N. Y. C. 346837 from KATY 2:45 P.M. 23rd. Now on hand bad order. Will move tonight." Further wires went out from our office. As a result, Newton, Kansas, reported on the 25th: "N.Y.C. 346837 will reach Winfield today," and later, "N.Y.C. into Winfield and delivered 11:00 A.M. date."

There's a little travelogue for you! Shifting loads and bad order cars are nothing out of the ordinary. They happen to every shipper with discouraging frequency. But here's the point: it's Greenspon's policy and duty to *know* that your order is moving toward you without the preventable loss of an hour. It's not enough to say that every piece of our pipe and casing must pass many rigid inspections in the process of reconditioning. It must be *what* you want—and it must be there *when* you want it.

Write, wire, or 'phone at any time for quotations on new and used pipe and casing, of all sizes and kinds in any quantity. *We have it.*



Jos. GREENSPON'S Sons
IRON AND STEEL COMPANY

MAIN OFFICE: St. Louis, Mo. **BRANCHES: Ft. Worth, Texas—Tulsa, Okla.**

Say you saw it in The OIL WEEKLY

Pruett sur, 160 ft to S and W lines. R. G. Gillespie Est., Park Bldg., Pittsburgh, Pa., J. P. Newton 14, S 145, W. Swain sur, 400 ft W of No. 10. Cranfill & Reynolds, Box 607, Cisco, Stone & Willis 1B, J. Rushing sur, 150 ft to N and E lines. Janellen Oil Co., Brownwood, M. J. Davis 2, No. 101 Nixon sur, 750 ft to N and E lines. Aaron Cohen, Maryland Trust Bldg., Baltimore, Md., J. W. Haynes 5, S 789, B 9, J. Delgado sur, 300 ft W of No. 4. Empire Gas & Fuel Co., Staley Bldg., Wichita Falls, J. W. Newton 1, No. 784, K. W. Harris sur, 150 ft to S and W lines. Price & Daniel, Brownwood, H. W. Phillips 1, B 108, S. Bangs sur, 150 ft to N and E lines. Humble Oil & Ref. Co., Cisco, A. E. Metts 2, W. A. Marr sur, 200 ft to S and 150 ft to E line. J. H. Fry 2, G. Stubblefield sur, 200 ft to E and 150 ft to S line; 3, 200 ft to N and E lines. W. N. Pugh 1, C. J. Pugh, sur, 150 ft to N and E lines. A. W. Armstrong 8, J. Delgado sur, 300 ft W of No. 6.

Bastrop County — Johnson Bros., 122 W. Park Ave., San Antonio, J. C. Williams 1, Doyle sur, 1050 ft to NW and 750 ft to SW line. R. W. Trigg 2, James Stewart sur, 150 ft NW of center of SE line; 3, 150 ft to N and 450 ft to E line B 14.

Bexar County — N. A. Saigh, Builders Exchange Bldg., San Antonio, J. Frees 1, No. 49, S. McCulloch sur, SW corner.

Brazoria County—Roxana Petroleum, Corp., Houston, T. Reese 1, T. & W. Alley Lge, 865 ft S and 450 ft E of N corner.

Callahan County—W. H. Kirby, Moran, J. A. Yarbrough 1, 2290, TE&L sur, 150 ft to N and 1510 ft to E line. Mortimer, Hobbs & Ferguson, Box 806, Abilene, W. Beasley 2, S 41 D&D Asy sur, 1470 ft to E and 510 ft to N line; 3, 150 ft to N and E lines L. Lowery, Waco, A. Rudloff 1, B 38, CCSL sur, 200 ft to N and 715 ft to W line. Shadbolt & Creighton, Spencer Bldg., Cisco. J. O. Hall 1, B 63, Powell & Leggett sur, 150 ft to S and W lines. N. M. George 1, S 71, Bayland Asy sur, 150 ft to S and W lines. James McCamey, Rising Star, A. W. Beasley 2, S 41, D&D Asy sur, 600 ft W of No. 1. Ocean Oil & Ref. Co., Coleman, E. E. Henderson 5, S H81, Bx73, 150 ft to S and E lines. M. D. Heist, Putnam, M. Hughes 8, S 6, D&D Asy sur, 300 ft E of No. 7. Murphy & Williams, Cisco, C. Ramsey 10, 3157, TE&L sur, 300 ft S of No. 6. McCamey, West & Hill, Rising Star, J. E. Jones 2, S 39, D&D Asy sur, 150 ft to S and W lines. O. D. Rochelle, Mineral Wells, M. T. Caldwell 1, 3193, TE&L sur, 300 ft to W and 150 ft S line.

Crane County—Atlantic Oil Prod. Co., Magnolia Bldg., Dallas, University C 1, S 47, B 30, Univerisity sur, 330 ft to N and W lines; 2, 330 ft to N and E lines. Gulf Production Co., Fort Worth, Z. E. Lasseter 3, S 35, B 30, University Lands sur, 336 ft to W and 990 ft to S line; 4, 336 ft to W and 1650 ft to S line. Tidal Oil Co., W. T. Waggoner Bldg., Fort Worth, University F 2, S 42, B 30, 330 ft to S and E lines; 3, 330 ft to N and W lines. Humble Oil & Ref. Co., Wichita Falls, University 6, S 38 B 30, 660 ft NE of No. 2; 5, 660 ft NE of No. 6.

Cooke County—Hedrick-Camp Drilling Co., Harvey-Snider Bldg., Wichita Falls, M. J. Kleis 2, Littleton, 450 ft W of No. 1. Richardson Bros., Inc., W. T. Wagonner Bldg., Fort Worth, Moore & Richolt 1, T. Jessup, center; J. C. Whaley 1, E. Yeaman, c. American Ref. Co., Wichita Falls, J. A. Dennis 8, T. J. Moss, 300 ft N of No. 6.

Carson County—Skelly Oil Co., Tulsa, H. Schafer 3, S 86 B 4 I. & G. N. Nc; 4 NWc; 2 S 87 Nc; 1 Wc.

Clay County—Western Oil Corp., Brown Bldg., Wichita Falls, Carrow A, B25 P. C. S. L. c. Caldwell & Culbertson, City Nat. Bank Bldg., Wichita Falls, A. H. Douglas 1, B21, A. Binkley 150 ft to N & E lines.

Coleman County—Amerada Petroleum Corp., Cisco, J. W. Harris 122 S 4, J. Sanders, 482 ft N of No. 66.

Caldwell County—L. I. Dodwell et al, Dallas, W. E. Lawler 1, J. Pinchback, 750 ft to N and 150 ft to E line.

Duval County—Cintex Petroleum Co., Box 636, Laredo, E. C. Williams 1, No. 354, 450 ft to NW and 150 ft to SW line.

Eastland County—Buttram Pet. Corp., Braniff Bldg., Tulsa, A. B. Kuykendall 1, E. S. Tucker, (Jack County). J. E. Lewis & Co. et al, Eastland, B. L. Horgus 1, S 2 B 3 E. T. Ry., 150 ft to N and 600 ft to E line; T. M. Johnson 1, S 11 B 4 H. & T. C., 200 ft to N and 550 ft to E line. Panhandle Ref. Co., Wichita Falls, L. W. Hightower 26, W. Van Norman, 300 ft E of No. 24. Chestnut & Smith Corp., Breckenridge, H. F. Mossman 1, J. S. Sapp, 150 ft W of c of E line. Moody Corp., W. T. Waggoner Bldg., Fort Worth, J. C. Dyer 1, S 464, S. P. Ry., 330 ft to S and E lines. Associated Petroleum Co., Fort Worth, M. L. Luse 1, S 14 B 2 BBB&C, 400 ft to E and 2350 ft to S line.

Fort Bend County—Rycade Oil Corp., Humble Bldg., Houston, F. Meier 4, N. H. Cleveland, 668 ft to W and 450 ft to S line. Texas Co., Houston, J. R. Farmer 1, J. Scott, 50 ft to S and W lines.

Grayson County—Richardson Bros., Inc., W. T. Waggoner Bldg., Fort Worth, P. L. Taylor 1, J. H. Hill, c.

Gray County—Magnolia Petroleum Co., Dallas, W. W. Merten 18, S 82, I. & G. N., 330 ft S of c of N line; 19, 330 ft to N and W lines.

Guadalupe County—Magnolia Petroleum Co., Dallas, F. Garcia (Webb County); A. H. Shubert 15, H. Cottle, 300 ft SE of No. 10.

Hutchinson County—White Eagle Oil & Ref. Co., Box 425, Amarillo, Johnson 3, M. Whitley, 330 ft E of c of W line. First National Oil Co., Amarillo, Cockrell 1, S 3 B B3 No. 3, NEc. Empire Gas & Fuel Co., Staley Bldg., Wichita Falls, Johnson B. 7, S 21 B Y A&B, 331 ft to N and E lines. Gulf Production Co., Fort Worth, E. B. Johnson 19, S 70 B 46, H. & T. C., 660 ft S of No. 9. Prairie Oil & Gas Co., Ranger, M. M. Weatherly 12, S 21 B Y A&B, 330 ft to N and E lines; 13 660 ft W of No. 12; Johnson, A. 52 S 21 B Y A&B, 994 ft to N and 1009 ft to W line; 53, 1654 ft to N and 330 ft to W line; Johnson, A. 63, S 4 B B4, H. & T. C., 947 ft to W and 425

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ft to S line; Johnson, A. 58, S 20 B B A&B, 330 ft to W and 990 ft to S line; 57, 990 ft to N and 330 ft to W line; Johnson, A. 54, S 21 B Y A&B, 1004 ft to W and 994 ft to S line. Spur-Mack Drilling Co., Oliver Eakle Bldg., Amarillo, J. F. Weatherby 1, S 24 B Y A&B, 330 ft to N and E lines. Prairie Oil & Gas Co., Ranger, M. M. Weatherly 4, S 19, B Y M&C, 330 ft to S and W lines.

Hale County—Engelking, Whyte, Gray Mc Glasson & Kegans, Box 722, Tulsa, Mullican 1, S 21 Blk B, NEc.

Hardin County—E. W. Skinner Oil Co., Saratoga, Tex., Booker 2, M. Hopkins. Minor Oil Co., Beaumont, Fee 81, S. Jackson, 298 ft to W and 400 ft to S line.

Howard County—Marland Oil Co., Fort Worth, H. R. Clay B1, S 139 B 29 W&NW, 200 ft to N and W lines. Magnolia Petroleum Co., Dallas, K. Chalk 2, S 124 B 29 W&NW, SEc; O Chalk 8, S 113 B 29 W&NW, 1000 ft to N and 339 ft to E line.

Harris County—Atlantic Oil Prod. Co., Esperson Bldg., Houston, J. E. Burt 1, A. R. Bodman, 1965 ft to E and 3940 ft to S line. Woods & Bennett, Humble, Texas, O. S. Parker 3, Jas. Stragne, 110 ft to N and 15 ft to E line. Gulf Production Co., Houston, J. W. Sanders 1, No. 1028 B 26, J. A. Williams, 310 ft to W and 25 ft to N line.

Harrison County—Nick Barbary, Waskom, Texas, D. M. Hudspeth 1, R. W. Bedford, 250 ft to N and 175 ft to W line; C. C. Robbins, Union Bank Bldg., Pittsburgh, Penna., C. B. Hickman 1, E. Pollock, 585 ft W and 1830 ft to S line; Abney-Reason 1, R. W. Bedford, 3385 ft to N and 875 ft to W line.

Hardeman County—Murchison Oil Co., Waggoner Bldg., Wichita Falls, Ayers 1, S 5 W&N W, 150 ft S of center of N line.

Jefferson County—Wilson-Broach Co., Beaumont, Mississippi-Texas 7, B 22 J. A. Veatch, NEc. Miller Drilling Co., Box 347, Fort Worth, J. S. Edwards 1, W. McFaddin, c. Yount-Lee Oil Co.,Beaumont, Gladys 21, B 12 J. A. Veatch, 415 ft to W and 417 ft to S line; 17, 370 ft to W and 904 ft to S line. McFaddin, Weiss & Kyle, 23, B 1, P. Humphreys, 270 ft to N and 1178 ft to E line; 25, 1086 ft to E and 365 ft to N line; Fee 23, J. Douthitt, 739 ft to W and 112 ft to S line.

Jim Hogg County—E. St. Albans, Laredo, R. Lopez 1, B 7 Las Animas, 216 ft to E and 150 ft to S line. Grayburg Oil Co., San Antonio, Weil 15, S 81, 300 ft N of No. 10.

Jack County—Buttram Pet. Corp., Braniff Bldg., Tulsa, J. Preston 2A, D. C. Sleggle, 150 ft to S and E lines; 3A, D. C. Sleggle, 1000 ft SW of No. 1A; A. B. Kuykendall 1, E. S. Tucker, 330 ft to N and W lines; C. K. Cullers 6, S. Chairs, 484 ft to W and 747 ft to S line. Seaboard Oil & Gas Co., Wichita Falls, Jackson Hrs., 1, No. 1 W. C. Ry., c.

Jones County—Harry J. Brom, Tulsa, Jepp, 1, S 24 B 14, T&P, 150 ft to N and E lines.

Jim Hogg County—Magnolia Petroleum Co., Dallas, Killam-Martinez 34, No. 256, 300 ft W of No. 19; 35, 300 ft SW of No. 25.

King County—Phillips Petroleum Co., Bartlesville, B. Burnett 1, S 2 M. Sneider, 330 ft S of c of N line.

Kleberg County—A. & M. Weil, Corpus Christi, Clark et al 1, S 40 B 12 Kleberg Twp., 300 ft to N and W line.

Liberty County—Gulf Production Co., Houston, Phoenix 83, J. Devore, 300 ft S of No. 45; 84, 225 ft S of No. 46; 85, 200 ft N of No. 64.

Limestone County—Transcontinental Oil Co., Tulsa, F. R. Richardson 1, A. R. Jones, 150 ft to E and 750 ft to S line.

Montague County—Pure Oil Co., Mexia, J. E. Crow 2, J. Chambliss, 410 ft NW of No. 1; J. W. Maddox C 6, C. W. Thompson, 396 ft E of No. 2. Gulf Production Co., Fort Worth, W. W. Jones B 2, W. Donoho, 150 ft to S and E lines. Continental Oil Co. of Texas, Wichita Falls, N. J. Howard 23, J. Chambliss, 422 ft E of No. 12; M. F. York 1, F. Robertson, 150 ft to S and W lines. Arco Oil Co., Box 1020, Wichita Falls, M. H. Salmon 3, W. P. Zuper, 300 ft E of No. 1. Richardson Bros., Inc., W. T. Waggoner Bldg., Fort Worth, J. L. Rice 1, R. Blaney, c.

Milam County—Phillips, Perry, Noack & Lanning, Rockdale, Texas, Phillips & Perry 1, T. J. Chambers, 150 ft to S and E lines; 2, 150 ft to N and 450 ft to E line. Brady Bros., Minerva, Texas, Aldridge 10, T. J. Chambers, 300 ft SE of No. 9. Rockdale Bev. Co., Rockdale, Texas, G. Lorenz 3, D. A. Thompson, 300 ft S of No. 2.

Mitchell County—Eastland Oil Co., W. T. Waggoner Bldg., Fort Worth, C. M. Adams, 2, B 28 S 11 Twp. 1, 330 ft to S and E lines. Magnolia Petroleum Co., Dallas, C. M. Adams 8, S 11 B 28 T&P, 660 ft NW of No. 1; C. M. Adams 4, S 11, B 28, T&P sur, 330 ft to N and W lines.

McCulloch County — M. L. Howell, Lohn, Texas, Roberts & Moore 10, J. Ohering, 1712 ft to W and 1629 ft to N lines.

Medina County—Finnell & Williams, 106 Romona St., San Antonio, J. H. Fohrs 2, No. 115, 190 ft N of No. 1.

Navarro County—De Arman Bros., Corsicana, Texas, T. G. Townes 1, S. F. McCandless, 175 ft to S and 150 ft to E line. G. C. Kent, Corsicana, Texas, R. Hardy 12, S. F. McCandless, NEc.

Palo Pinto County—J. T. Kennon, Dallas, J. R. Alexander 1, S. Townsend 200 ft to N and E lines. Hermosa Oil Corp., W. T. Waggoner Bldg, Fort Worth, T. E. Humphries 1, 1755 TE&L, 150 ft to S and E lines. Cranfill & Reynolds, Cisco, Texas, T. R. Gilbert 1, S 39 T&P, 685 ft to N and 1185 ft to E line.

Reagan County—Texas Co., Wichita Falls, J. D. Suggs 2, S 87 B 2 T&P c.

Shackelford County—P. S. Kendrick et al, Albany, Texas, Blach B9, 391 TE&L, 399 ft NW of No. 4. Southern Pet. Corp., Inc., Alexander Bldg., Abilene, Texas, A. F. Dyer 3, S 63 B 11 T&P, 150 ft to S and W lines. Mid-Kansas Oil & Gas Co., Tulsa, Goodwin & Walker 3, S 76 B 13 T&P, 1655 ft to E and 735 ft to S line. Dr. Chas. Wm Wallace, Wichita Falls, G. E. Waters 8, B 80 Univ. Lands, 150 ft to N and E lines. J. D. Meredith, Box 67, Moran, Texas. J. M. Phail 3, S 32 Univ. Lands, SWc. W. M. Roxx, Cisco, Texas, Poindexter 1, S 56 B 11 T&P, 660 ft to S and W lines. H. E. Trowbridge, Box 803, Cisco, Texas, L. C. Townsend 1, B 55 Univ.

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Lands, 1350 ft to N and 150 ft to W line. Roesner & Pendleton Inc., Fort Worth, A. Frye B21 384 TE&L; B20; A19; A18; B22; Reynolds 1, S 46 B 12 T&P, center of NE¼ of NW¼; W. I. Cook A34, S 60 E. T. Ry., 192 ft to S and 150 ft to E line; A35, 1151 ft to S and 450 ft to W line; A36, 480 ft to N and 450 ft to E line; A37, 150 ft to N and 450 ft to E line; A38, 165 ft to N and 150 ft to E line; A39, 500 ft to S and 150 ft to E line; A40, 846 ft to S and 1050 ft to E line; A41, 501 ft to S and 450 ft to E line; A42, 750 ft W and 150 ft to N line; C14, 150 ft to S and W lines; C15, 150 ft to S and 450 ft to W line; C16, 150 ft to N and 750 ft to W line; C17, 150 ft to S and 750 ft to W line; R. J. Moberly B2, S 12 B 12 T&P, 150 ft to E and 516 ft to S line; B3, 150 ft to E and 877 ft to S line; B4, 150 ft to S and 481 ft to E line; B5, 150 ft to E and 1177 ft to S line; R. J. Moberly A13, S 13 B 11 T&P, 1172 to S and 155 ft to W line; A14, 872 ft to S and 455 ft to W line; A15, 1172 ft to S and 470 ft to W line; L. C. Huskey 1, 530 TE&L, 1100 ft to E and 150 ft to S line; Douglas B1, 385 TE&L, 150 ft to S and E lines; Douglas A1, 385 TE &L, 150 ft to NW and 450 ft to NE line.; A2, 300 ft SW of No. 1. E. W. Shrock, Gude Hotel, Cisco, Texas, C. B. Snider 1, S 13 L. A. L. 150 ft to S and W lines. E. A. Engle, Albany, J. B. Mathews 1, S 32 E. T. Ry., 150 ft to S and E lines. J. D. Meredith, Moran, M. M. Dabney 3, S 32 Univ. Lands, SWc. Hope Petroleum Co. et al F. & M. Bank Bldg., Fort Worth, J. A. Jeter 1, S 14 B 11 T&P, 150 ft to S and W lines. Cosden & Hope Oil & Gas Co., F. & M. Bank Bldg., Fort Worth, W. Y. Davis 7, S 13 B 12 T&P, 300 ft N of No. 5; 8, 300 ft W of No. 6; 9, 300 ft S of No. 6. Hope Oil & Gas Co., F. & M. Bank Bldg., Fort Worth, W. D. Reynolds B1, S24 B 11 T&P sur, 150 ft to S and E lines; W. D. Reynolds 15, 300 ft S of No. 5; 16, 300 ft E of No. 14; 17, 300 ft S of No. 14. J. P. Harris, Mineral Wells, English 1, S 542, TE&L sur, 180 ft to N & W lines. L. B. Tannehill, Albany, Poindexter 1, S 33 Blind Asy., 150 ft to N and E lines; L. H. King 1, 569 TE&L sur, 1730 ft to NE and 150 ft to SE lines. Hughes & Simon, Albany, M. Bernstein 1, 556 TE&L sur, 150 ft to N and E lines. S. A. Hopkins, Box 1112, Cisco, J. Kane 2, B 59 Univ. Lands, Corp., Travis Bldg., San Antonio, Z. W. Casey 1000 ft to N and 1400 ft to W line. Milham 31, 581 TE&L sur, 300 ft NW of No. 17. Hoffer Oil Corp., Fort Worth, Proyles 4, S 14 L.A.L., 750 ft to E and 450 ft to N line. Home Oil & Gas Co., Inc., Albany, N. Huber 5, 531 TE&L sur, 300 ft E of No. 4.

Stephens County—Sun Oil Co., Dallas, G. L. Donnell 5, 1212 TE&L sur, 1178 ft SE of No. 4. Shaw & Conner, Fort Worth, W. Briden 1, 2957 TE&L sur, 270 ft to E and 300 ft to S line. Humble Oil & Ref. Co., Cisco, W. S. Glenn 5, 1405 TE&L, 790 ft to E and 1320 ft to S line. Jno. R. Eidson, Hamilton, J. A. Smith 1, S 39 B 6, T&P sur, 500 ft to N and 300 ft to E line.

Shelby County—Avalon Oil Co., 212 Levy Bldg., Abilene, Pickering Lbr. Co., 1, C. Ashton sur, 270 ft to NW and 1100 ft to NE line.

San Patricio County—W. L. Pearson, Corpus Christi, J. B. Cage 3, D. C. Rachel sur, 1200 ft S of No. 2; 4, 1200 N of No. 2.

Throckmorton County—Humble Oil & Ref. Co., Houston, M. K. Graham 2, TE&L sur, 200 ft to S and W lines. Pandem Oil Corp., Wichita Falls, A. McNutt 1, 279 BBB&C sur, 150 ft to N and W lines. Texas Co., Wichita Falls, M. K. Graham B 1, 993 TE&L sur, 250 ft to N and W lines.

Taylor County—Holbert, Pettit & Connell, 1017 College Avenue, Fort Worth, C. M. Hunt 1, S 124 B 64 H&TC sur, c. Humble Oil & Ref. Co., Wichita Falls, M. Jacobs 1, J. A. Nabers sur, 330 ft to S and E lines.

Upton County—Republic Prod. Co., San Angelo, M. L. Baker 6, S 8 B R, E. C. Grooms sur, 1192 ft to NE and 2501 ft to SW line. Humble Oil & Refining Company, Wichita Falls, R. P. Ricker 3, M. S. Denton No. 5, 330 ft to S and E lines.

Victoria County—R. M. Talbott, Box 462 Victoria, J. K. Reeves 1, J. Rene league, 1400 ft to N and 7000 ft to E line.

Wichita County — Simms Oil Co., Dallas, Waggoner 1, H. George sur, 150 ft to S and E lines. Culbertson Co., City National Bank Bldg., Wichita Falls, J. J. Waggoner 50, S 13, BS&F sur, 386 ft to N and 150 ft to E line; 51, 64 ft S of No. 50. R. M. Gilchrist, Burkburnett, W. W. Overby 2, J. M. Sharp sur, 150 ft to S and W lines. Petroleum Prod. Co., Wichita Falls, Kemp & Allen 6D, B 28, WVFL sur, 300 ft S of No. 4. L. P. Hammond, Staley Bldg., Wichita Falls, T. L. Burnett 48, J. A. Bradford sur, 150 ft to N and W lines. O'Donohoe-Gates Drilling Co., City National Bank Bldg., Wichita Falls, M. A. Love 1, B 11, W. S. Kennard sur, 150 ft to N and E lines; 3, 150 ft to N and W lines; 5, 150 ft N of center of S line. Dale Oil Corp., Wichita Falls, S. B. Burnett 21, No. 2, J. F. Torrey sur, 300 ft SE of No. 20. Gulf Prod. Co., Fort Worth, G. Jennings 18, S 12, HT&B sur, 1514 ft to E and 150 ft to S line. Hammon & Garrett, Wichita Falls, S. H. McCarty 9B, S. O. Fowler sur, 300 ft SE of No. 2. J. & J. Waggoner 2C, S 11, B 2, BS&F sur, 450 ft to E and 150 ft to S line. J. H. S. Bonner, Staley Bldg., Wichita Falls, Cole 15, J. McCool sur, 300 ft E of No. 14. F. C. Baldwin, Box 344, Fort Worth, W. T. Waggoner 22, 14, A. Gibson sur, 150 ft to N and E lines. T. F. Hunter, Wichita Falls, J. & J. Waggoner 27, S 1, GC&SF sur, 300 ft N of No. 26.

Wilbarger County — Gulf Production Co., Fort Worth, C. F. Blackman 2, DI&C Co., 618 ft NE of No. 1. T. J. Milner 18, S 12, HT&B sur, 150 ft to S and E lines. Fain-McGaha Oil Corp., Waggoner Bldg., Wichita Falls, W. T. Waggoner F1, S 51, B 4, H&TC sur, 150 ft to N and 450 ft to W line. M. L. V. Smith, Vernon, Waggoner 1, S 30, B 4, H&TC sur, 190 ft to N and 300 ft to E line. E. B. Lawson, Nowata, Okla., W. T. Waggoner 16, S 99, B 14, H&TC sur, 150 ft to E and 300 ft to S line. Waggoner Ref. Co., Electra, W. T. Waggoner 4, S 47, B 4, H&TC sur, 300 ft N of No. 3.

Webb County—O. W. Killam, Laredo, A. M. Bruni 1, B 65, A. De Arriba sur, 150 ft to N & W lines. Luther Johnson et al, Mirando City, Texas, R. Anderson 1, B 7, Los Ojuelos sur, SW corner. Magnolia Petroleum

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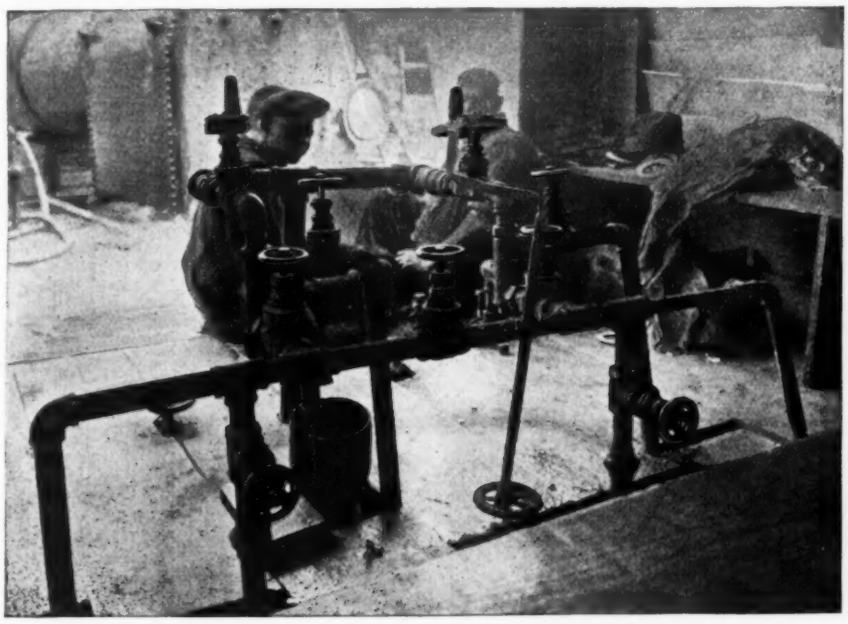

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GATE VALVES

Co., Dallas, F. Garcia 6, 258, K. W. Littig sur, 400 ft E of No. 4 Sun Oil Co., Beaumont, Killam-Bruni 13, Las Albercas sur, 400 ft S of No. 12.

Wheeler County—Tidal Oil Co., W. T. Waggoner Bldg., Fort Worth, C. Thompson 1, S 42 N 24 H&GN sur, 330 ft to N and E lines. Mid-Kansas Oil & Gas Co., Tulsa, Okla., H. C. Phillips 3, S 41, B 24, H&GN sur, 990 ft to E and 330 ft to S line.

Ward County—Marland Oil Co., Fort Worth, J. S. Smith A1, S 78, B A, Gunter-Munsen sur, 1320 ft to S and E lines.

Wharton County—F. E. Wallace, Houston, J. Kostlnik 2, 285 ft to W and 750 ft to S line.

Young County—King Royalty Co., Perkins-Snider Bldg., Wichita Falls, S. M. Benson 26, 1450 TE&L sur, 300 ft N of No. 23. Coons & Hotchkiss, Box 338 Graham,Texas, L. B. Scott 1, W. M. Johnson sur. Roeser & Pendleton, Inc., Fort Worth, Roeser-Davis 1, S. N. Daniels sur, 150 ft to S and E lines. Pitzer & West, Breckenridge, J. E. Morrison 40, B 1, E. Sherrill sur, 200 ft to N and E lines; J. E. Morrison 3, B. W. Hammons sur, 500 ft W of No. 2. Robert Oil Corp., Breckenridge, J. E. Graham 1, 3401 TE&L sur, 450 ft to S and W lines. E. C. Stovall, Graham, Fee 6, B 28, J. Tobin sur, 150 ft to E and 170 ft to S line. Pitzer & West, Breckenridge, J. M. Ingram 1, P. Pier sur, 150 ft to E and 259 ft to S line. Panhandle Ref. Co., Wichita Falls, R. W. Farmer 3, BBB&C sur, 300 ft N of No. 2. O. W. Mathews 5, A. Rohus sur, 300 ft SW of No. 2. E. N. McCleskey 18, 3415 TE&L sur, 334 ft NE of No. 10.

Zapata County—Texas Co., Houston, J. D. Jennings 4, C. Blanco sur, 5280 ft S and 2640 ft E of No. 3.

LOUISIANA

Acadia Parish—Jennings Petroleum Co., 2110 Liberty St., Beaumont, Texas, Eunice Crowley No. 1, 42-9s-2w, 750 ft S and 320 ft W of NE corner of section.

Bossier Parish — Louisiana Oil Refining Corp., P. O. Box 1117, Shreveport, I. H. Blanton No. 1, 23-23n-12w, 1980 ft S and 660 ft E of NW corner of sec.

Caddo Parish—J. H. Brogden, 702 Walnut St., Texarkana, Ark., McMillan No. 1, 11-16n-14w, 786 ft S and 755 ft W of center of section. J. B. Files, et al, Oil City, Payne No. 1, 35-23n-16w, 50 ft S and 100 ft E of NW corner of SW¼ of NW¼. Magnolia Petroleum Co., Shreveport, Doan-Thigpen No. 17, 6-20n-15w, 150 ft S and 150 ft W of NE corner of N½. Standard Oil Co. of Louisiana, Drawer 1739, Shreveport, W. P. Stiles, et al, No. 177, 33-21n-16w, 102 ft S and 565 ft E of center of section.

Calcasieu Parish — Gulf Refining Co. of Louisiana, Drawer "C", Houston, Texas, Lutcher-Moore No. 5, 19-9s-12w, approx. 2405 ft W and 1462 ft S of NE corner of section. Wilson-Broach Co., P. O. Box 1058, Beaumont, Texas, Parke No. 12, 34-10s-12w, 870 ft N and 22 ft E of SW corner of section.

Caldwell Parish — Humble Oil & Refining Co., Houston, Texas, L. Central Lbr. Co. No. 4-A, 12-11n-2e, 330 ft N and 990 ft W of center of section.

Grant Parish—The Texas Company, Shreveport, L. C. Swope No. 2, 16-9n-1e, 1160 ft W and 1050 ft N of SE corner of section.

Iberia Parish — Jefferson Oil & Dev. Co., 906 New Orleans Bank Bldg., New Orleans, Jefferson Is. Salt Mine Co. No. 1, 58-12s-5e, beginning at the SE corner of section 58, being the NW corner of section 65, twp 12s-r 5e, thence N 41 degrees 30 ft W, a distance of 6934 ft along the section line (to the subn line between Clarphe Lemaire and Sam Romero) thence S 56 degrees W, a distance of 683 ft (to the subn line between the Jefferson Is. Salt Mining Co.'s property and Clarphe Lemaire) thence N 41 degrees 30 ft W, a distance 382 ft (along said subn line), thence S 48½ degrees W, a distance of 225 ft to stake for location.

LaSalle Parish—Kirby Rowe, et al, Urania, Urania Lbr. Co. No. 1, 26-11n-1e, 95 ft S and 851 ft W of NE corner of SE¼ of SE¼.

Morehouse Parish—Consolidated Carbon Co., P. O. Box 45, Monroe, J. White No. 1, 16-20n-4e 445.5 ft N and 1782 ft W of SE corner of section. Standard Oil Co. of La., P. O. Drawer 1739, Shreveport, Interstate Cooperage Co. No. 4, 27-20n-8e, 1050 ft S and 120 ft E of NW corner of NE¼.

Ouachita Parish — Southern Carbon Co., Monroe, La Dell No. 5, 2-19n-4e, 1980 ft S and 660 ft W of NE corner of section.

Richland Parish — Fred Stovall, Monroe, Mitchell No. 1, 20-17n-6e, 660 ft N and 660 ft E of center of section.

Sabine Parish—Arkansas Fuel Oil Co., Ardis Bldg., Shreveport, Logan Oil Co., No. 4, 33-10n-12w, 1078 ft S and 990 ft W of NE corner of section. Arkansas Fuel Oil Co., Shreveport, Logan Oil Co. No. 5, 28-10n-12w, 330 ft S and 290 ft E of NW corner of S½ of SE¼. John W. Moffitt, et al, 925 Slattery Bldg., Shreveport, O. F. Moore No. 1, 5-9n-12w, 300 ft S and 300 ft W of NE corner of NE¼ of NW¼. The Ohio Oil Co., Giddens-Lane Bldg., Shreveport, H. A. Cook Land Co. No. 1, 34-10n-12w, 588 ft S and 2411 ft W of NE corner of section. Northwest Louisiana Gas Co., P. O. Box 1695, Shreveport, Coyle, et al No. 1, 22-21n-10w, 660 ft S and 660 ft W of NE corner of SE¼.

Winn Parish—Humble Oil & Refining Co., Houston, L. & A. Oil Co. No. 19-A, 31-10n-2w, 2310 ft S and 660 ft W of NE corner of section.

OKLAHOMA

Carter County—Humble Oil & Refining Co. No. 13 Jordam, in the northeast of the northwest of the southwest of 18-1-3; Max Westheimer No. 2 Dixon, in the northwest corner of the southwest of 18-13; Humble Oil & Refining Co. No. 4 Calvery, in the southwest of the southwest of the southwest of 2-2-3. Magnolia Petroleum Co. No. 1 R. A. Grimes, in the northeast of the northwest of the northeast of 10-2-3. Coline Oil Co. No. 1 Pierce, in the northeast corner of 18-2-2. Simpson & Fell No. 3 Lowery, in the southwest corner of the southeast of the northwest of 9-4-2.

Cleveland County — Wiser Oil Co. No. 1 Bird, in the southwest corner of the northwest of 25-6-1.

Creek County — C. G. Tibbson No. 4 F. Lucas, twin, in the northeast corner of the northwest of the northwest of 31-15-9e; No. 4 Fields, twin, in the southwest corner of the northwest of the southwest of 30-15-9e. Sherry

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et al No. 1 Bowman, in the southwest corner of the northwest of the northeast of 7-16-12. Cumberland Petroleum Co. No. 3 Meyers, in the center of the west line of the southwest of the southwest of 18-17-11. J. R. Cole No. No. 2 Sparks, in the center of the south line of the northwst of the southwest of 18-17-11. Kurell Oil & Gas Co. No. 7 Davis, in the southwest corner of the northwest of the southwest of the southwest of 11-17-11. H. C. Wilson No. 1 Tiger, in the southwest corner of section 28-17-10e. J. H. Wright No. 10 Dawson, in the center of the east line of the southwest of 24-17-10e. Whitten & Wilcox No. 3 Wrightman, owd, in the southwest corner of the northeast of 11-17-10. Henry Oil Co. et al No. 1 Unallotted in the center of the northwest of the southeast of 1-17-10e. Sunray Oil Corp. et al No. 1 Townlot, lot 47, blk 16, 6-18-12. Savoy Oil Co. et al No. 1 Townlot, in lot 46, blk 9, 6-18-12. Savoy Oil Co. et al No. 1 Townlot, in lot 38, blk 17, 6-18-12e. Regal Oil Co. No. 16, School Land, twin, in the southeast corner of the northwest of the northwest of 13-18-11. The Texas Co. No. 14 Land, twin, in the northeast corner of the northwest of the southwest of 1-18-11. Gypsy Oil Co. No. 23 McGuire, in the northwest corner of the southwest of the southwest of the northeast of 1-18-11. Steinberger & Smith No. 3 Miles, in the northwest corner of the northeast of the southeast of the southeast of 19-19-8e. R. R. Billingeles No. 1 S Bruner, in the southeast corner of the southwest of the southwest of 10-16-8e. C. L. Freland No. 1 in the northwest corner of the southeast of the northeast of 36-15-7e. F. R. Billingles et al No. 1 Lewis, in the southeast corner of the southwest of the southwest of 10-15-8e.

Garvin County—Magnolia Petroleum Co. No. 26 Cowan, in the southwest corner of the northwest of 15-1-3. The Texas Co. No. 1 Banks, in the northwest of the northeast of the southwest of 31-1-3.

Gardy County — Meridian Gas Co. No. 1 Kit Farwell, in the northeast corner of the southeast of 23--5-6. Oklahoma Natural Gas Company No. 3 Sanford, in the southwest of the northeast of the southwest of 23-5-8. Oklahoma Crude Oil Co. No. 3 Glover, in the northeast corner of the southwest of the northeast of the northeast of 27-25-8w. J. B. Nichols No. 1 Williams, in the northeast of the southwest of the southwest of 11-4-8. Watchorn Oil & Gas Co. No. 3 Pettitt, in the northwest corner of the southeast of 11-4-8w. Carter Oil Co. No. 4 Dolen, in the southeast corner of 8-3-5; No. 2 Dolen, in the northwest corner of the southeast of the northwest of 16-3-5. Magnolia Petroleum Co. No. 3 Cochran, in the northeast of the southwest of the southeast of 27-3-5; No. 5 Harrison, in the northeast of the southeast of the northeast of 28-3-5.

Hughes County—Amerada Petroleum Corp. No. 2 Hully, in the southwest of the northwest of the northwest of 6-9-10. Transcontinental Oil Co. No. 9 Ogle, in the southeast of the northeast of the northeast of 4-9-9. Atkins et al No. 1 Charles, owd, in the northwest of the southwest of the southwest of 19-9-9.

Kay County—Carter Oil Co. et al No. 3 E. Nixon, in the northwest of the southwest of the northeast of 17-29-1. Hag Oil Co. No. 1 Buessing in the northwest corner of the southeast of the southeast of the northeast of 20-27-1. Barndall Oil Corp. No. 1 Glasgow, in the northwest of the southeast of the northwest of 6-26-1.

Lincoln County — Empire Gas & Fuel Co. No. 1 Ward, in the northeast corner of 33-17-4. W. J. Sherry & C. J. Wrightman No. 1 Hays, in the southeast corner of the northeast of the southeast of 21-17-4.

Okfuskee County—Burke Greis No. 1 Deer, in the northeast corner of the southeast of the northeast of the northeast of 1-10-9. Riverland Oil Co. No. 2 Barnett, owd, in the southeast corner of the southwest of 23-11-11. Atlantic Oil Producing Co. No. 4 Jackson, in the center of the northwest of the southwest of 35-11-11. W. O. Umburn No. 1 Detzler, in the northwest corner of the southwest of the southwest of 36-11-11.

Okmulgee County — T. A. Johnson No. 1 Marsey, in the northwest corner of 15-15-12. W. B. Pine et al, No. 1 Burton, owd, in the

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northeast corner of the southwest of the northeast of 4-14-12. Sheldon Oil Co. No. 1 Shelton, in the center of the southwest of the southeast of 15-13-12. Hampton & Wyles No. 1 Jordan, in the northwest corner of the southeast of the northeast of 31-12-12. X-Ray Oil Co.'s No. 1 Crune, in the northeast corner of the southwest of the southeast of 9-14-14. No. 1 Phillips, in the southeast corner of the northwest of the southeast of 9-14-4; No. 1 Reed, in the northwest corner of the southeast of the southeast of 9-14-14. Link Oil Co. No. 2 Thompson, owd, in the northwest corner of the southwest of the northeast of 17-14-15. J. W. Roberts et al No. 2 B. Carter, in the northwest corner of the northeast of the southeast of 10-15-14.

Osage County—Pioneer Petroleum Co. No. 8, in the northwest corner of the southeast of 5-20-11. Sand Springs Home Oil Co. No. 102, in the southeast corner of the southwest of the northwest of 36-20-10. Oklahoma Natural Gas Co. No. 764, in the northwest corner of the southwest of the northeast of the northeast of 14-21-10. Osage Oil Syndicate No. 9, in the northeast corner of the southeast of the northwest of 7-21-7. T. K. Smith No. 2, in the southeast corner of the northeast of 5-22-12. Superior Oil Company No. 1, in the center of the northwest of 8-22-11e. M. & T. Oil Co. No. 3, in the northwest of the southeast of the southwest of 34-23-9. Indian Territory Illuminating Oil Co. No. 359, in the southwest corner of the northeast of the northwest of the northeast of 29-23-8. Tidal Osage Oil Co. No. 6, in the southwest of the northeast of the southeast of 1-23-8; No. 5, in the northwest corner of the southeast of 20-24-9. Phillips Petroleum Co. No. 16, in the northeast corner of the southwest of 20-26-6; No. 13, in the northwest corner of the southeast of 20-26-6. Skelly Oil Co. No. 1, in the southeast corner of the southwest of 12-26-4. Delmar Oil Co. No. 2 in the southwest corner of the northeast of the southeast of 23-27-11. Blackwell Oil & Gas Co. No. 1 in the northwest corner of the northeast of the southwest of 5-27-11. Kewanee Oil & Gas Co. No. 6 in the northeast corner of the southwest of the southeast of the 34-27-6. No. 5, in the northwest corner of the southwest of the southeast of 34-27-6; No. 5, in the northeast corner of the southeast of the southwest of 34-27-6; No. 7, in the southwest of the northeast of the northwest of 34-27-6; No. 6, in the southeast corner of the northwest of the northwest of 34-27-6. Carter Oil Co. No. 4, in the southeast corner of the northeast of the northeast of 33-27-6. Peters Petroleum Company and others No. 2, in the northwest corner of the northeast of 20-27-6. J. J. Fitzstevens No. 1, in the southeast corner of the northwest of 16-28-8.

Pawnee County—Continental Oil Co. No. 12 Makin, in the southwest corner of the northeast of the southeast of 32-20-5. Bryan Emmery No. 1 Henry, in the northeast corner of the southeast of the southeast of 25-21-6. Twin State Oil Co. No. 1 Norman, in the southwest corner of 14-19-5.

Pontotoc County—Shaw et al No. 1 Bennett, in the northeast corner of the southwest of 33-5-5. T. B. Slick et al No. 1 Graham, in the southwest corner of the southeast of 21-5-6. American Oil & Refining Co. No. 1 Stringer, in the southwest corner of the southeast of 28-5-6. Snowden & McSweeney No. 1 Stewart, in the northwest corner of the southeast of 11-5-8.

Pottawatomie County — White Eagle Oil & Refining Co. No. 1 Hodges, in the southeast corner of the southwest of 6-7-5. Continental Oil Co. No. 1 Blevins, in the southwest of the northwest of the southwest of 28-10-7. Barnsdall Oil Corp. No. 1 Henry, in the southeast of the southwest of the southeast of 14-9-6. Carter Oil Co. No. 1 Harjo, in the southwest corner of the northeast of 36-9-6. Jarvis & Holmes, No. 1, Lowery, in the northeast of the southwest of the northeast of 7-9-8. The Texas Co. No. 1 Butler, in the southeast corner of the northwest of 7-9-8. Atlantic Oil Producing Co. No. 2 Taylor, in the southeast corner of 10-8-6; No. 3 Taylor, in the northeast of the southeast of the southeast of 10-8-6; No. 4 Taylor, in the northwest of the southeast of the southeast of 10-8-6. Mid-Continental Petroleum Co. No. 4 Taylor, in the northeast

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United States Patent Office
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12th fl. Union N. Bk., Houston, Texas

corner of the southwest of the southeast of 10-8-6. Indian Territory Illuminating Oil Co. No. 5 Davis, in the southeast corner of the south of 13-8-6; No. 2 Harjoche, in the northwest corner of 14-8-6; No. 3 Bowlegs, in the southwest corner of the southeast of the southeast of the southwest of 15-8-6. Indian Territory Illuminating Oil Company No. B Goforth in the northeast of the northwest of the northeast of 15-8-6; No. 6 Walker, in the southeast corner of 15-8-6. Atlantic Oil Producing Co. No. 6 A. Jones, in the northwest corner of the northeast of the southeast of 16-8-6. T. B. Slick No. 2 Fox, in the northeast corner of the northwest of the southeast of 16-9-6. Indian Territory Illuminating Oil Co. No. 1 Billington, in the northeast of 28-8-6. Mid-Continent Petroleum Corp. No. 2 Works, in the northeast corner of the northwest of 24-8-6. W. R. Ramsey No. 1 Johnson, in the southeast of the northeast of the southeast of 30-8-6. Shaffer Oil & Refining Co. No. 10 Jones, in the northeast corner of the southeast of the southwest of the northwest of 32-8-8.

Stephens County — Magnolia Petroleum Co. No. 13 Dora Russell, twin, in the southwest of the southeast of the southeast of 25-1-9. Margay Oil Co. No. 2 Reeder, in the southeast of the northeast of the southeast of 12-1-9.

Tulsa County—J. Hayden No. 2 Futrell, in the center of the south line of the northwest of the southwest of 6-19-10. Superior Oil Corp. et al No. 7 Burnett, in the center of the northeast of the northwest of 7-19-10. W. E. Holma et al No. 1 Storm, in the northwest corner of the southeast of 25-19-10. Gledden Oil Corp. No. 1 Fife, owd, in the southwest corner of the northwest of the southeast of 15-19-11. Welch et al No. 1 Berryhill, in the northeast corner of the southeast of the southeast of 18-17-13.

Wagoner County—R. F. Ray et al No. 1 Ballard, in the northeast corner of the southwest of the southeast of the southwest of 36-16-17.

THOMAS D. LYONS

Attorney at Law

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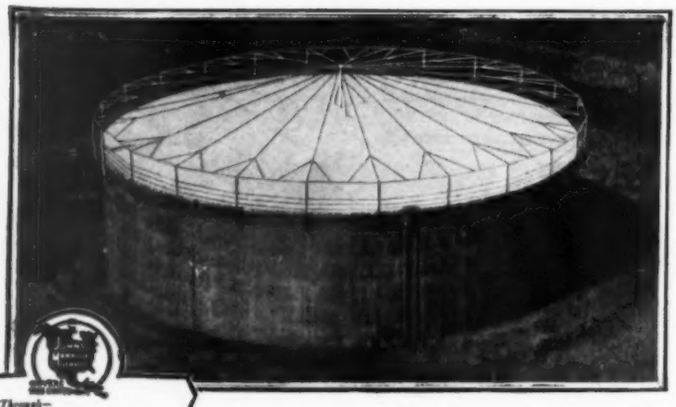

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